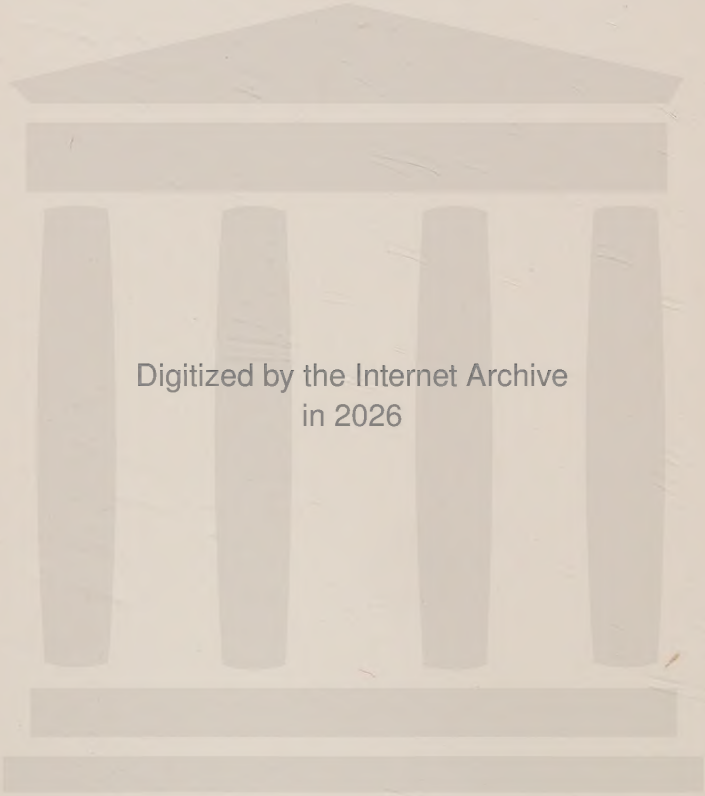
Social Decay and Regeneration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SOCIAL DECAY AND REGENERATION

To

MRS. BERNARD BISHOP

THIS BOOK IS DEDICATED IN GRATEFUL ACKNOWLEDGMENT
OF THE KINDLY AND HELPFUL INTEREST THAT
SHE HAS TAKEN IN ITS MAKING

SOCIAL DECAY AND REGENERATION

BY

R. AUSTIN FREEMAN

WITH AN INTRODUCTION BY

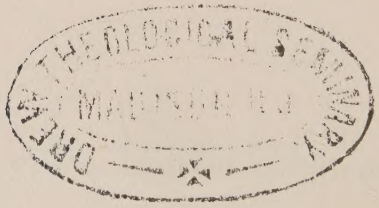
HAVELOCK ELLIS

"Ill fares the land, to hast'ning ills a prey,
Where wealth accumulates and men decay."

BOSTON AND NEW YORK
HOUGHTON MIFFLIN CO.
1921

301.246
F855s

Printed in Great Britain.



INTRODUCTION

Some fifteen years ago a brilliant young American, Gerald Stanley Lee, wrote as a sort of "Introduction to the Twentieth Century" a book called "The Voice of the Machines." It was one long pæan of joy, infused with much genuine poetic feeling. Man is a machine and the creator of machines. He is turning all life into machinery; modern religion is a machine; education is a machine; government is a machine; trade is a machine; society, literature, journalism, art—all are machines. There is nothing in our modern world that we can do or have or hope to have which is not bound up with machinery. It is in machinery that we must seek for poetry and for beauty and for the Infinite. Those persons who still fail to see this are blind, even already dead; they do not belong to our time.

Mr. Lee's book is still worth reading. It contained a genuine element of truth which had too often been overlooked. Yet it was not the whole truth, and where true it was not impossible to view the matter from an altogether different angle. Ever since the Industrial Revolution began, more than a century ago, there has been an obscure and smouldering resentment against the mechanization of work and life. Among the workers, indeed, whose sound instincts may have felt more than they were able to express, the introduction of machinery, we know, led at first to open revolt and disorder. But

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the economists assure us that at that time industry was afflicted by decay and disease, and it was precisely the introduction of machinery which cured the disease; so those pessimistic persons who were inclined to think that, at the same time, it had killed the patient have mostly kept the opinion to themselves. In their wildest denunciations they have remained mild and apologetic, almost eager to give away half their case. Ruskin, who in the last century figured as the chief antagonist of machinery, was in reality scarcely an antagonist at all. He entered, indeed, a notable general protest against the mechanization of work and of life, but when he approached details he was chiefly concerned to express his personal objection to certain by-products of the age of machinery which offended his own æsthetic feelings; he was not opposed to machinery and was even ambitious of inventing machines himself. William Morris, again, simply wished to return in practice to the old pre-machine stage of craftsmanship which he idealized in his Utopian "News from Nowhere"; he made, and as an artist it was not his concern to make, no analytic study of the tendencies of the machine age or attempt to show the way out of it, for Marxism was clearly not the way out. The political economists, as we might expect, have been simply content to investigate things as they are, and not to criticize them; even those who possess a broad, judicial, and humane view of economics, like Professor Marshall, are tender to machinery; and Mr. J. A. Hobson, who goes far in the subordination of economics to social civilization, and realizes something of the inadequacy of machine production, is mild and qualified in his condemnations and has much to say on the other side. They all feel that the Machine Age is too sacrosanct to permit of anything but the mildest criticism of its tendencies, in a whisper, which they seem to hope no one will overhear, and even when they seem

about to open their mouths to roar, it is, after all, "as gently as any sucking dove." For they have never ventured to face the actual facts, and it is even doubtful whether they have always been able to perceive them.

Some twenty years ago I chanced to come across a volume of "Travels and Life in Ashanti and Jaman," presenting a fresh and vivid picture of a strong and primitive people just then being "civilized" off the earth. The author was evidently a man of penetrating observation, of independent judgment, capable of outspoken criticism when it was required, so that his name and his book remained in my memory. Therewith he passed out of my ken. But in the meanwhile, as I learn, and as indeed one might expect in a writer of so vigorous a mind, he has been active in another field, and now, with the present volume, he has again by chance come into my line of vision. It is incomparably a more mature book than the "Travels." I realize how profitably the author must have spent the intervening years. On every page one feels that he has acquired a singularly wide, varied, and precise acquaintance with the phenomena of our social life; at the same time he shows a keen power in analyzing these phenomena as well as in demonstrating their wider bearings on the fate of mankind. Moreover, unlike the professional political economists, he gives the impression of having learnt to approach his task, not in the study, but by a large contact with human life and affairs and by a sensitive intellectual receptivity to that contact. That is why I gladly avail myself of the opportunity to help to make this book known to those whom it may concern.

There are few whom it can be said not to concern. To-day, indeed, when, as never perhaps before, there is so much searching of heart concerning the foundation on

which we have based our civilization and so bitter a sense of disillusionment concerning the results so far attained, there may be many to heed the truths so clearly and so uncompromisingly set forth in this book. We are here shown what a Machine Age actually means, and what it must inevitably mean; how the machine which was meant to be the slave of man, its master, becomes itself the master and man its slave; how the effects of machinery on human welfare always tend to be illusory, for the " labour-saving " device increases labour, and the " time-saving " device destroys leisure; how the whole process is necessarily accompanied by a general and increasing degradation, not only in the products of machinery, but in the men and in the society which is responsible for them.

The prospect is not, therefore, hopeless. Dr. Flinders Petrie, in his notable and suggestive little book, " Revolutions in Civilization," points out the remarkable uniformity shown by the civilizations of the past in their progress from growth to decay, the final stage being marked by loss of artistic power and the general uprising of a restless democracy. We seem to see both these tendencies in our own civilization (although the author of the present book, in agreement with Robert Michels in his remarkable and too seldom read study of " Political Parties," finds the modern democratic tendency towards oligarchy), and we see them operating through the development of machinery and the general mechanization of life. Yet, however surely we may know that no civilization endures for ever, the fount of hope springs, and rightly springs, eternal in the human breast. The author of this book, at all events, believes that there is a way to prolong, or even to renew, the life of our civilization. Not everyone will accept his remedy as practicable, just as not everyone will agree at every point with his diagnosis. To some it may seem that,

while we may approve his exposition of the aptitude of every social class, not excluding that of state-controllers, to act in antagonism to society, he yet scarcely makes clear enough the fact that the labouring class, while sometimes the victimizers, have beyond any class been in the past the victims of the Machine Age, and that Labour is now becoming recognized as a supremely important factor of Society. Some of us, also, may consider that Collectivism has claims under modern conditions to play in the social order a valuable part not incongruous with Individualism, and indeed as its indispensable ally, and that these claims are not discredited by setting forth the extravagancies of a wild Collectivism unbridled by Individualism. The fact, however, that the author's standpoint is evidently not that of the extremists on the Labour side obviously adds more point and force to his analysis of our social system, in which he has much in common with the latest social theorists in their revolt against the domination of the State and the spread of bureaucracy. To some readers, no doubt, it will seem that the author's plan of social regeneration is too Utopian in character. One would like to know his attitude towards the schemes of the Guild Socialists, with which his own scheme seems often to have points of contact, being like theirs an attempt to correct the faults of the present industrial system by introducing a maximum amount of individual freedom, responsibility, self-government, and the disappearance of State control, while at the same time he understands—as the Guild Socialists have often failed to understand—that the eugenic problem has now become the most fundamental of social problems.

Criticisms, however, so far as they merely qualify the arguments here set forth are but the legitimate outcome of our own special idiosyncracies, or the author's, and so far as they are merely negative they are futile.

It is more to the point to consider what we ourselves propose to do about the matter. Whatever we propose to do about it, here, certainly, is a book which will help us to realize along what road our civilization is at present moving.

HAVELOCK ELLIS.

PREFACE

THE present book is the product of many years of reflection on the changing conditions of our society and on the probable course of social evolution in the near future. If it had been written a dozen years ago, it would have presented the social conditions of to-day as appertaining to a period nearly a generation later. But the cataclysm of war has precipitated social changes, just as, in the individual, a severe illness may precipitate old age. The sudden transformation of our Industrial Democracy into a Militant Autocracy of the Collectivist type interrupted the continuity of social evolution and violently accelerated the changes in the modes and agencies of social co-ordination.

Nevertheless these changes are but a stage in a train of causation which extends far into the past. And as the mariner, by pricking off on the chart the completed portion of his voyage, is enabled to forecast the direction of the remainder; so, by an investigation of the genesis of present-day conditions, may we hope to forecast the general direction of social change in the near future. And should that forecast indicate change in an unfavourable direction, we may consider how far the change may be subject to our control.

Such is the purpose of the present work; which accordingly falls into two parts: an Analytical part, in which the more important social phenomena are examined as to their nature and causation; and a Synthetic part, in which an endeavour is made to apply to the furtherance of human welfare the inductions made in the first part.

As originally written, the second part contained a synthetic scheme, presented in very full and minute detail. But as this appeared somewhat out of character with the rest

of the book, and as the detail, in what was, after all, but a tentative suggestion, served no useful purpose, it was withdrawn (for subsequent publication if this should seem desirable) and the chapter rewritten so as to present the scheme in a simplified and generalized form. And this, I think, will commend itself even to the most sympathetic reader; who will agree to the desirability of completely establishing the principles before proceeding to consider the details of their application.

R. A. F.

GRAVESEND,
November, 1920.

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PART ONE
ANALYTICAL

Section I.—Social Physiology

CHAPTER I

INTRODUCTORY

If it were possible for a Palæolithic man to revisit the world from which he departed some eighty thousand years since, there can be no doubt that he would find in its altered condition much occasion for surprise. The great buildings, the teeming cities, with their strangely-disguised denizens, his old acquaintance, the horse—transformed from a beast of the chase to an instrument of traction; the clamorous factories, the railways with their swift, ungainly monsters, and the giant ships ploughing the no longer empty ocean: would all contribute to his amazement and bewilderment. But of all the spectacles that might meet his astonished eye, there is, I feel sure—and I speak from an extensive acquaintance with primitive man as he is yet to be found in the interior of Africa—none that would astound him more than that of a modern City man exercising himself with the aid of a pair of dumb-bells or a Sandow's developer. That any sane man, who might, if he pleased, sit on the ground and chew a stick or otherwise recreate himself, should voluntarily engage in bodily toil, without even the expectation of any profitable result, would, I am convinced, appear to him the very nadir of contemptible absurdity, and send him hurrying back to the underworld, thanking his gods that he had not been fated to survive into the age of fools.

We smile indulgently at our imaginary barbarian and set down his contemptuous surprise as the product of ignorance. But yet, if we, too, survey this spectacle thoughtfully, we shall find in it something, if not surprising, at least very significant. For this artificial process by which the sedentary urban man struggles to tone up his flaccid muscles and restore his lost physiological balance, is the confession of a physiological failure. It implies a consciousness that the

conditions of life, on the one hand, and the functions of the body on the other, have ceased to be satisfactorily adjusted to one another. In short, it seems to hint at the establishment of an unfavourable environment.

And if, from this particular but representative case we turn, and stepping back, as it were, to gain a wider view, run our eye over a civilized society—our own, for instance—and note its general conditions, the suspicion is by no means allayed. On all hands we see conditions arising which tend to create discrepancies between man and the unalterable essentials of his environment; between his mode of life and his bodily functions. For the citizen is first of all a man; and the man is a mammal; and the mammal is an animal; and the animal is an organism. And it is just those characteristics which are the most general, and therefore the most ancient, which are governed by laws the most imperative and immutable. When, by the extension of towns, and especially by the establishment of enormous industrial areas, we see the countryside devastated and its meadows and woodlands replaced by immense expanses of brick and cement, amidst which countless multitudes of chimneys pour forth products of combustion into the atmosphere, we see the commencement of a process by which is threatened a serious disturbance of the equilibrium of life. For it must be remembered that between animals and plants there exists a sort of symbiosis, each consuming the by-products —carbon and oxygen respectively—of the other's vital processes; and that consequently the earth cannot be denuded of its vegetation beyond a certain degree without the establishment of conditions highly unfavourable to animal life.

Again, we cannot but be impressed by the rapidly diminishing part that is played in human activities by muscular action. A century ago human muscles were the chief motive power. In the workshops, most of the tools were hand-driven, or if machines, like the lathe or the potters' wheel, were used, they were still driven by muscular power. Only occasionally was wind, water or animal power called in to supplement it. Now, every workshop is furnished with power in some form. Not only are machines like the lathe, the potters' wheel and the loom, power-driven, but hand tools such as the saw, plane and hammer are disappearing in favour of the circular saw, the planing machine and the steam or pneumatic hammer. And with the in-

creasing use of electricity, " power " is finding its way into the smallest establishments: even the hairdresser conceals a little electric motor in the handle of his rotary brush.

And so with transport. A century ago, wind power at sea and animal traction on land were in use for long distance travelling, and to some extent for shorter journeys, but the latter were largely made on foot or horseback, or in the oar-propelled wherry, while practically all minor movements to and fro were performed on " Shanks' mare." To realize the change we have only to glance through the older literature and note how little account our ancestors took of quite considerable distances on foot; to observe Izaak Walton strolling forth from his shop in Fleet Street to enjoy a day's fishing in the neighbourhood of Waltham Cross, or follow the peregrinations of Roderick Random and his friend Strap, or note the pedestrian exploits of Parson Adams; and contrast with these the urban man of to-day who scrambles into a motor-bus or a taxi-cab for a journey of a few hundred yards, or the country folk who wait patiently by the roadside for the power-driven car that has displaced the modest carrier's van.

And the change continues apace. The development of the small motor brings " power " to the smallest consumer. The dentist's drill and the vacuum cleaner furnish instances in the domains of professional and domestic work; in the department of transport the motor has descended from the train to the car, from the car to the bicycle; and now we hear of a motor-driven " scooter " by which the incurably sedentary man may save himself the labour of walking up the street; nor is it even now, beyond the powers of the mechanician to furnish the still more sedentary man with the means of travelling directly from his breakfast table to his office desk without rising from his chair.

Thus the tendency is to an increasing disuse of human muscles and the replacement of their functions by mechanical substitutes. And since, as is well known, the disuse of function results in loss of function and disuse of organs results in atrophy of the organs so disused; it is obvious that the tendency is towards a social state in which the average individual will present an appreciable amount of muscular atrophy. Indeed, this tendency is already beginning to materialize, as we may gather from the advertisements of the professional " strong men " and the various " exercisers " and " developers " that we see in the shop windows. But in

the animal body it is impossible for one system of organs to undergo atrophy without injuriously affecting the remainder. The novelist does, indeed, present us with a super-man of the future—a bladder-headed intellectual with a colossal brain and no limbs or other organs to speak of. But physiology will have none of him. Disuse of the muscular system involves failure of the circulatory system and thereupon a general disorganization of the functions of the body. Muscular feebleness is not the correlative of intellectual brilliancy as fiction writers are apt to imply, but quite the reverse, as our recent military experiences have pretty clearly shown. Speaking broadly, the lower category man was of markedly inferior intelligence, and one found that, in the mass, the men whom one had to mark "unfit to march" were unfit for any duties requiring mental alertness.

But it may be suggested that the threatened evils are, like the cooling of the sun and the change in the direction of the earth's axis, in the remote future and may safely be left for our remote posterity to deal with. A fairly conclusive answer to this is to be found in the condition of our industrial population. It is generally admitted that the factory folk are markedly inferior in physique to the rural population or even to "free" workmen. They tend to be small and stunted in growth, to have unusually bad teeth, to suffer from digestive and pulmonary troubles and to be flat-chested and physically "poor." These statements, however, although they issue from reliable sources, are somewhat general and difficult to verify or prove. On the other hand, the health conditions prevailing in particular areas are fairly exhibited in the death rates; and if we compare in this respect a number of factory towns with a similar number of rural towns from the same district, we should acquire some reasonably reliable data. We will take a dozen Lancashire towns, six factory towns and six rural. Of the former (Manchester, Salford, Burnley, Preston, Bolton and Wigan) the average death rate per thousand for 1896 was 23·5: of the latter (Blackpool, Lytham, Carnforth, Turton, Little Crosby and Little Wooton) the average death rate for the same year was 9·3. The highest death rates were those of Manchester and Salford, 25·65 and 25·46 respectively: the lowest were those of Little Crosby and Little Wooton—6·2 and 5·8. Thus the average death rate of the factory towns was more than twice that of the rural, while the death rate

of Manchester was more than four times as high as that of the rural districts of Little Crosby or Little Wooton.

By these figures we see that conditions of existence which we have found to be theoretically unfavourable to human life are actually unfavourable; and if we bear in mind that these conditions are of recent origin; that they are extending with ever-increasing rapidity; that not only do they appear to be accepted by economists and politicians as normal and inevitable, but by certain "progressives," who would see our country one great hive of industry, they represent the goal of national aspirations: there would seem to be established a *prima facie* case for further investigation.

CHAPTER II

THE PROFIT AND LOSS OF PROGRESS

When we essay to draw up a balance-sheet of the profit and loss of progress it becomes necessary to crystallize into a more complete definiteness certain ideas and phrases that are current in a somewhat indefinite form. We must, for instance, decide what we mean by progress; and since this is commonly associated with advance in civilization, the meaning of the latter term must be defined.

By civilization I understand the sum of those adjustments whereby man is enabled to live in large aggregates; adjustments by means of which the inherently unfavourable effects of aggregation are neutralized, or even replaced by favourable effects. Broadly speaking, these adjustments resolve themselves into various forms of co-operation between the units of the social aggregates; in the renunciation by individuals of exclusively egoistic purposes and activities in favour of those which aim at mutual and common welfare.

Progress itself may be considered in two aspects. In one it may be regarded as the sum of those evolutionary changes which, for better or worse, have actually occurred. In the other it may be considered in terms of those changes only by which man himself has been improved and his conditions of life made better. In the present summary the first aspect must be the one considered; and the purpose of its consideration is to determine to what extent the two aspects coincide.

If we take a general retrospective glance at the human

race as it appears at successive stages of its past, the result is distinctly disappointing. At once it becomes evident that the promise of early history, and that more remote and generalized biography of man that is implicit in palæontology, has not been fulfilled; that the great and splendid progress of the earlier days of the race has not been maintained.

Man, as he first comes into view in the Pleistocene or at the end of the Pliocene period, primitive barbarian as he is, is yet a notable advance on any previous living form. In his case, the two aspects of Progress coincide completely; for he is a more perfect animal, physically and mentally, than any of his predecessors, and his conditions of life are superior to those of any non-human being.*

But though he represents an advance on all previous forms, his state is almost unimaginably primitive. Like an infant, he is confronted by a universe of the properties of which he knows nothing. His poverty is absolute, for he has no knowledge wherewith to enrich himself. Naked, probably almost speechless, his only tool and weapon a roughly-broken flint, fashioned so rudely that it requires an expert eye to recognize it as human handiwork; unacquainted with metals, or even perhaps with fire; separated from the lower animals only by a somewhat higher intelligence and a bodily structure adapted to a greater variety of movements and having an unlimited potentiality for development: such is man as he first appears over the horizon of human history.

Yet, from this humble start, let us see to what height he had risen after the lapse of some threescore thousand years. We will glance at his condition, say in the year 3000 B.C. as he is to be seen in the Nile Valley. Already he is living in large and well-ordered communities with all the machinery of a complex civilization. He has an established government, a system of jurisprudence, a complex religion and a wealth of myths and traditions. Though unacquainted with iron, he is an expert metallurgist as to the less refractory metals, with the aid of which he works—and works magnificently—granite, porphyry, syenite and other of the hardest stones. Not only can he smelt metal; he can work it in every away: draw it into wire, beat it into sheets, cast it, emboss, chase, engrave and even inlay and enamel it.

* The view taken by Professor Keith and other anthropologists that Eolithic Man is not the ancestor of modern man is not material to the present argument, since the ancestors of modern man necessarily passed through a similar culture stage

He has invented the lathe and the potter's wheel and can make, glaze and enamel excellent earthenware. He is an expert woodworker, joiner and carver. He is an admirable sculptor, draughtsman and painter. He has developed a great architectural style, and his stone buildings are not only the greatest in size ever erected but are of unsurpassed excellence of workmanship. He is a builder of sea-going ships of considerable burthen and is a capable coastwise navigator. He has invented the loom and produces textiles of fine quality. He has a rich language and has devised a system of written characters, the handsomest ever produced, with a convenient and practical cursive script. He makes excellent paper and has an extensive, dignified and beautiful literature. He has numerous musical instruments, including the harp, lute, viol, drum, sistrum, cithern, dulcimer, flute, recorder, trumpet. He has established something approaching a metal currency; has a number of weapons—sword, spear, bow and arrow, sling, boomerang; and has invented most of the hand-tools now in use. He has domesticated the ox, sheep, goat, horse, camel, dog, cat, pig and various birds, and is an expert agriculturalist. He makes furniture of unsurpassed excellence of design and workmanship and can cut and polish precious stones and set them in beautiful jewellery. In short, he is already acquainted with the essentials of all the arts and crafts, and in many of them he is, to this day, unexcelled if not unequalled.

Moreover, if from its outward manifestations in the arts, we turn to less obvious evidences of his mental advancement, we find that this was very considerable. To a respectable knowledge of astronomy he added some acquaintance with mathematics; a thoughtful, and contemplative habit of mind appears in his literature and is suggested by his religion; while, as to his ethical outlook, it can be very fairly judged by a study of those didactic works known as "Instructions," or advice of a father to his sons; some of which, such as the well-known "Instruction of Ptah-hotep," exhibit conceptions of conduct and of social duty and manners such as might be expressed by a gentleman of the highest culture and character at the present day, and are considerably in advance of those by which the behaviour of the majority of men is governed.

Thus in the interval of time which elapsed between the beginning of the Eolithic period and the year 3000 B.C. a

profound change had occurred in the condition of man. Complete barbarism had given place to well-developed civilization.

The Factors of Progress.

Before we proceed further to trace the course of human progress, and to institute further comparisons, we may profitably pause to consider the changes above noted and, if possible, to ascertain their nature.

The changes which, collectively, we call progress may be divided into two groups: (1) Intrinsic changes in man himself; and (2) extrinsic changes due to the accumulation of the by-products of human activity.

1. It is now generally agreed by biologists that intrinsic changes in man are due principally to variation; that the new characters thus evolved inhere in the germ-cell and are transmissible to posterity independently of environmental conditions and that they are not due to the inheritance of characters acquired during the life-time of parents or ancestors. They thus appear to be, as to their causation, completely, or almost completely, unconnected with the environment.

2. The extrinsic changes, on the other hand, are essentially environmental. The accumulation of the by-products of man's activities constitutes a change in his environment. But if these latter changes are inoperative in the causation of the former, the converse is by no means true. On the contrary, the principal cause of these extrinsic changes is the previous occurrence of those intrinsic changes by which new characters have accrued to man. Of the by-products of human activity which tend to accumulate, the principal one is knowledge; for even the material accumulations are but the concrete expressions of knowledge; and the accumulation of knowledge is dependent on the existence of certain intrinsic qualities.

Among the lower animals there is no appreciable accumulation of knowledge, owing, principally, to feeble memory and imperfect means of communication, as well as to the slight development of the faculties of observation and reasoning by which knowledge is originally acquired. A relatively intelligent animal, such as a dog or cat, does, during its lifetime, acquire a certain small amount of knowledge, a portion of which it may impart to its offspring. A cat, for instance, is said to teach her kittens to catch mice.

But the total amount of knowledge is so small and the means of communicating it so imperfect that no appreciable accumulation takes place. In the case of primitive man, on the other hand, the conditions necessary for accumulation had already begun to exist. The faculties of observation, by which the raw material of knowledge is acquired; of reasoning by which that material is converted into knowledge; of memory, by which the knowledge acquired is rendered permanent to the individual; all were developed, if only in a rudimentary form. And the development of articulate speech furnished a means of communication by which the individual could impart his knowledge to his contemporaries or offspring. Moreover, when knowledge began to materialize into concrete products, those products were at once a source of knowledge and a means of its preservation. The first flint axe, the first hut, the first canoe, were each a demonstration and a record of the knowledge acquired by some exceptional individual. The invention of the art of writing furnished a further means of communicating knowledge, and of rendering it permanent, *i.e.* of securing accumulations.

But the means of communication—speech, writing, drawing, printing, etc.—are themselves forms of knowledge and tend to accumulate; and as knowledge becomes classified and organized it creates certain special facilities for communication such as technical nomenclature. Finally, knowledge is itself a source of knowledge; it forms data which yield conclusions, which in their turn constitute fresh data; so that knowledge appears to exhibit an inherent tendency to increase; and since the existing accumulations furnish the material for further increase, it follows that the normal tendency is for knowledge to increase and accumulate with continually accelerating rapidity.

For our present purpose it is important to note that the growth of knowledge takes place by two processes, which we may call the continuous and the discontinuous, which imply very different degrees of mental faculty. By the discontinuous process knowledge advances *per saltem* by the discovery of new fundamental principles. By the continuous process it advances by small accretions to an already existing body of knowledge. For instance, the discovery by Harvey of the circulation of the blood was a sort of intellectual mutation by which was created the science of rational physiology; but the bulk of that science as it exists to-day has been produced by inconsiderable additions easily yielded

by the existing data. So the invention of the steam engine was a mutation, whereas the successive improvements, each suggested by an obvious structural defect, by which the perfect modern form has been produced, have occurred by a progressive or continuous process. So, too, the discovery by Pasteur of the existence of micro-organisms and of their connection with infectious disease was discontinuous; it created a new area of knowledge. But the isolation of the specific organisms of particular diseases and the other multitudinous details of modern bacteriology represent a continuous growth of knowledge.

The quality of mind implied by these two processes of growth is very different. The "intellectual mutation" is the product of a very exceptional mind; the small progressive additions, by which the great bulk of knowledge is created, represent the contributions of industrious mediocrity. And if the amount of mental faculty required to produce these inconsiderable progressive increments is small, that required for the acquirement by the individual of knowledge already extant is smaller. The fallaciousness of the proposal to estimate the intellectual quality of individuals by their academic successes is demonstrated by the fact that members of quite unprogressive races—negroes, for instance—have no difficulty in obtaining degrees at English Universities. Mere learning or scholarship, unaccompanied by additions to the sum of existing knowledge, furnishes no evidence of faculty above the level of mediocrity.

Thus in our examination of Human Progress we have to consider two groups of changes which run concurrently: intrinsic changes in man himself, chiefly estimated in terms of intelligence; and extrinsic changes consisting of the accumulation of the by-products of his existence—chiefly knowledge. These two sets of changes are very commonly confused in current thought; and since the extrinsic changes are obvious and striking, while the intrinsic changes are difficult to estimate, the tendency is to consider human progress almost exclusively in terms of the former.

The Nature of Early Progress.

Having disposed of these preliminaries, we may now return to our comparison. In the interval which elapsed between the commencement of the human period and the year 3000 B.C. there had occurred, as we have seen, the pro-

found change in the condition of man that had transformed him from a primitive barbarian into a member of a highly civilized community; and the question that presents itself for consideration is, what was the nature of that change? Was it a radical change in man himself? Or did it consist merely of the slow accumulation of knowledge gradually acquired during the passing millenniums?

It is a difficult question to answer; for we cannot produce the men themselves in evidence. We have but the material remains which testify to the standard of knowledge attained; at the one end of the series a shapeless nodule of flint; at the other a wealth of products—buildings, books, implements, statues, ornaments—each a monument of ingenuity, industry and taste, and the whole a record of the conquest of Nature by man. The impression that we receive as we contemplate the two extremes of the series is that the later man is a radically different being from the earlier. But impressions are not evidence. And if we try to imagine what would be the condition even of a modern man of good intelligence if from babyhood he grew up in a wilderness without human companionship and without any knowledge excepting that which he himself acquired, we shall probably conclude that he would not be materially different from an Eolithic man.

Nevertheless, our impression receives support from certain general considerations. In the first place, Eolithic man had but recently emerged from the merely animal state into that distinctively human. That is to say he had recently made an advance in intrinsic quality; and since he was still living under conditions substantially identical with those of the lower animals, the laws of survival of superior types and elimination of inferior ones were still operative, with a resulting continued advance. Again, looking at the remains of the Egyptian civilization, we see that they represent faculty as well as knowledge. A porphyry statue is the product of great skill, taste and the power of sustained effort. But these are personal qualities; and they are qualities which we know to be mainly lacking in the lower animals and which would therefore require to be developed by man on his emergence into the human state. They are qualities, too, in which the inferior races of to-day are deficient. Moreover, in respect of the latter we have to note the very important fact that, even to the present day their accumulations are but trifling. The bushmen of Australia have been, presumably, in existence as long as the higher

races; yet how little knowledge have they accumulated! And the negroes of tropical Africa, who are shown by the monuments to have been the contemporaries of the ancient Egyptians, are to this day living under conditions substantially identical with those of primitive man.

We are therefore confronted by two alternatives. Either the primitive Eolithic barbarian possessed immediately on his emergence from the condition of a mere animal all those personal qualities of intellect, taste, ingenuity and patient industry which are manifested in the remains of Egyptian civilization; or there had occurred in the course of his progress from barbarism to civilization a profound change in his intrinsic character. Of these two alternatives the latter is obviously the only one that is possible to adopt.

The great change in the condition of man from the earliest period to the year 3000 B.C. is thus twofold; there has been a progressive advance in intelligence and a gradual accumulation of the products of its exercise.

Characteristics of Later Progress. Extrinsic Changes.

And now, from this early period, let us turn our attention to the five thousand years that have succeeded it and see if we can still trace this twofold change; and especially if we can find evidence that such a change is operating in our own day.

In respect of one of the elements of this twofold change we can be in no doubt. From the time of the pyramid builders onward, there has been a steady accumulation of the by-products of man's existence. As we glance over the intellectual history of Antiquity and the Middle Ages and consider the remains that constitute their bequests to posterity, we become aware of a continuous augmentation of the wealth of man. Knowledge, ever growing, and ever growing more rapidly, like a sum of money put out at compound interest, measures for us the conquest by man of his environment. Arts arise, and from their tentative beginnings develop to undreamed-of perfection, yielding fresh knowledge and material gifts. The ponderous and wasteful construction of the Egyptian Temple leads on to the Greek, the Roman, the Romanesque forms until the building art culminates in the masterly, light and economical construction of developed Gothic. The art of writing

evolves a simple, legible and beautiful set of characters which it hands on to the printing press; whereby begins a fresh and wonderful accumulation of wealth. The inconstant sundial and the rude clepsydra give place to the clock, and later to the chronometer; and mechanism, astronomy and navigation move up to a new level. And so throughout the whole field of human activity; the industry, the curiosity, the reflectiveness of the men of each age have yielded permanent products which have become the inheritance of their posterity. Like a polyp on a coral reef, each generation has left its environment at a higher level than it found it.

Of the accumulations of knowledge and its concrete manifestations in our own time it seems hardly necessary to speak; for they are far from receiving insufficient attention. Our wealth in them is the subject of endless complacency and each new increment is hailed with a chorus of self-congratulation. And truly they are wonderful. Their actual bulk and the speed of their increase are alike bewildering. New knowledge, new discoveries, new inventions, tread on one another's heels, until the textbook grows obsolete as it passes through the press and the new machine is superseded as it leaves the workshop. The power that these immense accumulations of knowledge confers on man is beyond the wildest dreams of our forefathers. Daily the conquest of his environment by man becomes more complete. Daily does he grow more independent of the mere properties of matter. Refractory material ceases to exist as such in the presence of illimitable mechanical power and the electric arc; weight is a negligible quality; chemical units become as the pieces of a chess player; and time and distance cease to be of any account in human affairs.

The change in the relation of man to his environment—of his place in Nature—is indeed astounding. Its recital is as that of a fairy romance. This little hairless animal that once crept, naked and forlorn, over the face of the earth, going warily and timorously amidst its numberless perils, snatching a precarious subsistence from chance scraps picked up by the way; clutching, as his choicest possession, a chunk of stone or a knotted stick; the sport of the elements, the prey of the larger beasts; homeless and shelterless save for the cavern whose tenancy he disputed with the hyena or the cave-bear: behold him now in all the opulence of his great inheritance of knowledge, lording it over the world through which he once sneaked in momentary peril of his

life! Less gifted with specialized means than any other animal, he has yet outstripped them all. He burrows into the very bowels of the earth; he traverses its surface at a speed that leaves the fleetest beast as stationary; he follows the leviathan into the depths of the sea; he skims the surface of the ocean more swiftly than the flying fish; he soars to aerial heights inaccessible to the eagle or condor.

But there is no need to occupy space by an attempt to catalogue the accumulated wealth of knowledge which we have inherited, or the further accumulations that occur from day to day. We may safely conclude that in respect of those extrinsic changes in the condition of man which form one moiety of progress, the advance has been fully maintained.

Effect of Extrinsic Changes on the Conditions of Life

Before leaving this part of our subject, however, we have to assess the actual benefit derived from these environmental changes. The wealth of accumulated knowledge is admitted; but apart from its application—its translation into improved conditions of life—it would represent but an unsubstantial factor of Progress. And first we must determine what we mean by good and bad conditions of life respectively. The word happiness we had, perhaps, better avoid lest the psychologists cavil; but we may safely regard good conditions of life as being those which tend to be accompanied by pleasurable states of consciousness, and bad conditions those which tend to be accompanied by unpleasurable states of consciousness. Viewed thus subjectively, the question is not easy to answer, for it is difficult to estimate the subjective states of men of the past, and not very easy to assess those of the present. But we can examine the factors of human welfare; and assuming that given causes will produce appropriate effects, form an opinion as to whether the conditions of life in the past were more or less likely than those of the present to be productive of a generally pleasurable state of consciousness.

1. We will begin with the administration of justice, since this is the foundation of Social welfare. Here the accumulated knowledge, though great, is less than might have been expected. It exists in a somewhat diffuse form and has not undergone the organization that is noticeable in some other departments of knowledge; the English Criminal Law, for

instance, still awaits the codification advocated by the late Sir James Fitz-James Stephen. Consequently the practice is still too dependent on precedent and too little guided by general principles. But in spite of this there has been an immense advance in the application of knowledge to the administration of Law, especially in recent years, and in the consequent efficiency of the machinery of Justice. Comparison of the proceedings of an English Assize Court of the seventeenth or even of the early nineteenth century with those of a similar court at the present day shows how great has been the improvement in methods and results; and when we consider to how great an extent general welfare and the liberty and security of the individual are dependent on the efficiency of the administration of justice, we shall admit that here the social balance-sheet records a substantial profit.

2. Closely related to the above is the security of life and property. In civil life and in connection with the administration of law, the security of life and property has tended progressively to increase. Whether in his house or abroad, in town or country, the citizen of to-day is more immune from robbery or violence than the citizen of any other period. In other respects, however, progress is more doubtful, even if actual retrogression has not occurred. If this book had been written in 1913, it would have recorded a substantial advance in this important department of civilization. Now we know that that advance was illusory; that barbarism was not extinct but had only passed into a resting stage, from which the first beat of the drum roused it to a state of active savagery. And it is interesting to note that under the conditions of modern warfare, not only have the lives and property of civil populations become less secure than ever before, but that this insecurity of life and property is directly due to the accumulated knowledge. Inhabitants of inland cities, who were formerly secure from all the contingencies of war, excepting complete invasion, are now at the mercy of enemies whose attacks are made possible by advances in mechanical knowledge on the one hand and in chemical knowledge on the other. The more completely to realize this truth one has but to glance at the devastated areas of France and Flanders. The villages, towns and cities which the war has utterly annihilated were ancient villages, towns and cities which had lived on with little change from the Middle Ages. Century after century the tide of war had flowed through their streets; hostile armies had swarmed

into them; they had been besieged, stormed, and even sacked; but still they stood, virtually intact. Now, after but a few months of war, the wealth of accumulated knowledge in the hands of a horde of barbarians has swept away this priceless inheritance from the past so that nought remains but shapeless mounds of débris.

In this respect, then, the conditions of human life, so far from having been improved by the accumulation of knowledge, have been notably altered for the worse. And the change still continues. The knowledge accumulates apace and its applications threaten the very existence of civilized man. The production of the flying machine represented a considerable advance in mechanical knowledge; but I am unaware of any respect in which human welfare has been increased by its existence; whereas it has not only intensified enormously the horrors of war, and, by furnishing criminals and other undesirable characters with a convenient means of rapid and secret movement, markedly diminished social security, but it threatens, by its inevitable advance in construction, to make any future conflict virtually equivalent to the extermination of civilized man. And the maleficent change in the conditions of human life which the flying machine has produced from the air, the submarine parallels from the depths of the sea; indeed, the perception of this truth has led to the very doubtfully practicable suggestion that the building of submarines be made illegal.

These unfavourable results of the accumulation of knowledge are associated with the periodic phenomena of war. But there are indications that even under normal peace conditions the security, at least of property, is declining. No longer indeed does the highwayman haunt the country road, or the footpad the unfrequented street. But daily the tenure of property becomes more uncertain. There is a growing confusion in the conception of ownership; a growing tendency to conceive property as being held subject to the will of the State. The proletariat begins to claim as a right—without advancing any intelligible title—a share of the inherited property of the wealthy and of the savings of the thrifty; a claim apparently admitted by the politicians who, in their turn, appear to claim the power of the absolute disposal of all private property. Thus security from petty robbery seems to be more than balanced by the threat of large appropriations through political agencies.

Moreover if life itself is more secure, there is at the present

moment a distinct tendency towards a diminution of personal liberty. The increasing control by the State over the conduct and activities of the individual; the management of his children, the details of his diet and the conduct of his ordinary affairs; tend more and more to limit his personal freedom. But the restriction of his liberty amounts to a reduction of his available life; just as complete loss of liberty differs little from complete loss of life.

Thus in respect of the security of life and property the balance sheet shows both a profit and a loss; a profit where normal social evolution has operated, a loss where this has been interfered with by the rise and growth of collectivism and a further loss due to the effects of accumulated knowledge, the magnitude of which future events will determine.

3. We may next consider the effects of accumulated knowledge on comfort and convenience.

It is generally agreed that the standard of comfort at the present day is much higher than that of any former period. But the "standard of comfort" represents the means demanded rather than the result attained. Comfort itself is a state of consciousness and must be conceived in subjective terms, not in terms of the apparatus devised to produce it. New means represent a result aimed at; but only when the result is achieved do we actually realize a profit. The standard of comfort of a millionaire is vastly higher than that of a prosperous artisan; his means are immensely greater; but in the degree of comfort attained, it is highly probable that the advantage lies with the artisan. His means are less, but so also are his needs.

In estimating the increase of comfort, therefore, we must beware of the tendency to conceive the latter in terms of means. But also, in comparing the past with the present, we must beware of what Herbert Spencer would have called automorphic interpretations—of the tendency to estimate past conditions in terms of our own habitual states of mind. Ideas of comfort and discomfort are surprisingly different among peoples of different periods and regions. The ideas of comfort of the Eskimo and the Tropical African differ as completely as do their surroundings. The domestic arrangements of the Middle Ages, as exhibited, for instance, in "The Reeve's Tale," appear to us almost intolerable. Yet they could not have been appreciably uncomfortable or the obvious alterations would have been made. Then consider cleanliness as a factor of comfort. It is the universal

experience in the local prisons that tramps who are admitted encrusted with dirt and crawling with vermin, display the most intense aversion to the process of hair-cutting, the really luxurious hot bath and the clean clothing with which they are provided. Their ideas of comfort are widely different from those of middle-class men. Again, our officers who, while serving in the trenches, became infested with vermin, were horrified and miserable and hurried off shuddering, at the first opportunity, to the disinfestation centres. But let us listen to Pepys:

(June 11, 1668) "And there with great difficulty come about ten at night to a little inn, where we were fain to go into a room where a pedlar was in bed, and made him rise; and there wife and I lay, and in a truckle bed Betty Turner and Willett. . . .

12th (Friday) "Up, finding our beds good, but lousy; which made us merry."

The astonishing indifference of these ladies and this cultivated gentleman of the seventeenth century to what we should regard as a horrible misadventure, to say nothing of the primitive domestic arrangements accepted by them without comment, warns us to beware of applying our own standards in the estimation of conditions of life in the past. The truth is that comfort and convenience are largely matters of use. The advantage of a new means is realized in conscious comfort only while its newness enables it to be contrasted with the old. Thereafter it becomes normal and habitual and it is doubtful whether comfort, as a conscious state, is permanently increased by the change.

The position, then, in regard to comfort is that the means for its attainment have become enormously increased. That results proportionate to those means have been attained is more than doubtful. We have many things which our ancestors had not. Where the need for them was felt, we profit; where a real need existed though not realized, we have still gained. But the possession of things which are now indispensable, but formerly were dispensed with, is a questionable gain, and may even be, to some extent, a loss. If we regard comfort as the complete satisfaction of conscious physical wants, it would seem that new wants created and then supplied, cancel; the *status quo* is substantially unchanged. And a new want is at least a potential evil. Much of the hardship that was felt during the war and during the industrial collapse which followed it can be clearly

attributed to the failure to supply needs that have only recently come into existence. There is much truth in the dictum of Diogenes that a man's wealth may be estimated in terms of the number of things that he can do without.

4. Of the accumulations of medical knowledge little need be said. They are enormous in bulk—far more so than is generally realized—and inasmuch as they are in the hands of the practitioners of the art of medicine, their application to the amelioration of the conditions of human life is fairly complete. As to the effects of such application on the welfare of humanity there can be no question. Diseases that were once prevalent and fatal are now rare and curable; injuries formerly mortal and deformities once incurable are now susceptible of easy repair; operations formerly impracticable are now performed with perfect safety, and, owing to the discoveries of anæsthetics and aseptic surgery, without pain. The available knowledge is sufficient, under suitable social conditions, practically to abolish infective and communicable disease, and to prevent a very large proportion of morbid conditions otherwise produced.

As a set-off to these benefits, it may be said that medical knowledge has been the means of preserving many lives which had better not have been preserved. But the value of a particular life is not the concern of the medical practitioner. His function is to preserve life and diminish suffering. In its advisory capacity the medical profession has indicated means by which the reproduction of unsuitable individuals may be prevented. The application of that advice lies with the community. Medical practice must proceed upon the assumption that a life which actually exists is worth preserving.

The changes, then, wrought in the conditions of human life by the application of accumulated medical knowledge are all changes for the better. Premature death, disease, bodily deformity, suffering and the pain of bereavement are all conditions by which life is made less pleasurable and whose partial or complete elimination renders it more pleasurable. And such has been the result of the medical knowledge that has accumulated and whose sum is still augmenting. That knowledge is pure gain; and it is the greatest gain that we have to record.

5. In the development of the institutions of Government we have a somewhat obscure case—obscure both in respect of causation and of effects on the conditions of life. For

the gradual change from a completely autocratic to a completely democratic form has not been the direct result of increasing knowledge, but represents a series of adjustments to the change in the character of the community from the militant to the industrial type, which change is the direct result of increasing knowledge. Knowledge of social phenomena has indeed accumulated and has even been organized into a science—Sociology; but that knowledge is not in the possession of the practitioners of social government. In the regular professions the right to practise is earned by the production of evidence that the candidate has undergone a specified course of training and study and that he has passed such tests as established the possession by him of the knowledge and skill that are necessary for efficient practice. The would-be medical practitioner, for instance, must first pass an examination such as would admit him to the Civil Service, and thereafter, for not less than five years, study in a suitable institution the medical and allied sciences with their practical application in the hospital wards; at the end of which course of study, he must pass an examination by skilled professors and practitioners and must satisfy them that he possesses the necessary knowledge and the skill and judgment to apply it in practice. And not until he has done so does he receive a licence entitling him to practise medicine.

The professional politician whom modern democracy has brought into existence differs entirely from other professional men. He is totally unqualified. He has undergone no course of training, he has passed no tests; he produces no evidence that he possesses any knowledge whatever of the complex social phenomena which he proposes to direct. A soldier, a sailor, a journalist or (more often) a lawyer, he steps at once, without any preliminary preparation, into the position of a full-blown legislator. Such knowledge as the "old parliamentary hand" has acquired has no relation to social phenomena. It is purely egoistic. How to get elected, how to manage a constituency, how to get into office, how to keep in office: these are the items of knowledge which go to the making of a professional politician. For the discharge of his ostensible functions—the direction of the intricate life of a community—he depends on his natural wits, leaving the cultivation of social science to the "arm-chair philosopher."

It is a highly anomalous position. In respect of the

accumulated knowledge of social phenomena, we have two classes of persons: the men of thought—Sociologists—whose function is to acquire that knowledge; and the men of action—politicians—whose function is to apply it in practice. It is a strange division of labour. To realize its absurdity we have only to consider what the results would be if a similar division of labour existed in other professions: if medical and surgical knowledge were cultivated only by detached savants, while medical treatment was conducted and surgical operations were performed by strenuous but unlearned "men of action"; or if legal knowledge were cultivated by scholars as a branch of polite learning while the judicial bench and the bar were occupied by "men of action"—retired officers, journalists, brewers or financiers —who had some leisure time on their hands and had a fancy to be judges or counsel. Thus stated, the position is grotesque; it is on the plane of comic opera. But it exactly represents the conditions under which the management of the State is conducted. The position of master of a steam trawler can be attained only after years of training and the passing of rigorous tests of competency; but the First Lord of the Admiralty may be a publisher, a brewer or a stock-broker. Last year he may have been Postmaster-General and next year he may be Chancellor of the Exchequer or even Prime Minister; and for none of these employments is he asked to produce evidence of special training or present competency.

The injurious effects upon general welfare of this inadequacy of the governing body will tend to be proportionate to the size and complexity of the community on the one hand and to the range of governmental activities on the other. In both of these respects there is a continuous advance. Not only has the population increased enormously of late but the complexity in structure of the community has increased disproportionately; and with the increase of complexity has naturally come an increase of the discrepancy between the functions of the governing class and their adequacy to perform those functions. But the range of governmental activity has also extended and continues to extend by leaps and bounds. In various directions it is encroaching on the domain of individual enterprise; and where the governing agency does not actually compete with or supersede the individual, it assumes control of his actions. Moreover it essays to supersede by a system of ministerial

control those automatic and infinitely complex adjustments by which social equilibrium was formerly maintained. It dictates the wages paid by employers, the hours of labour, the prices of commodities, the profits of retailers and manufacturers, the importation and distribution of merchandise, the quantity and quality of certain items of food and drink consumed by individuals; in short, the community is beginning to present the likeness of a vast puppet show in which every movement and action is initiated by the group of politicians who hold the strings—a development on which the social, industrial and economic chaos which has prevailed during the post-war period is a sufficient commentary.

Knowledge of social phenomena, therefore, has perhaps accumulated somewhat less than many other kinds of knowledge, and is less organized. It still exists largely in the form of special subjects—biology, heredity, eugenics, medicine, economics, psychology, etc.; and inasmuch as it has not been utilized to an appreciable extent by those who control social activities, it may be regarded as practically inoperative on the conditions of human life.

The general conclusion that seems to emerge from this brief examination is that the conditions of life have been affected by the accumulation of knowledge less than might have been expected. Considered subjectively—in terms of the preponderance of pleasurable states of consciousness—the result is disappointing when the magnitude of the means is considered. In some directions there has been a great advance, in many directions but a small one, and in some the conditions of life have been affected adversely.

Intrinsic Changes.

From these extrinsic changes let us now turn to the intrinsic and see if, along with this great accumulation of the by-products of man's existence there has occurred a corresponding change in his personal character. For this, after all, is what matters. The destiny of the race will be determined, not by the wealth of accumulated knowledge, but by the quality of the individuals of which the race is composed. It is certain that a community of men of high moral and intellectual type, if cast away on a remote oceanic island, would live a satisfactory life even if compelled by their surroundings to revert to Stone Age conditions; while we have only to turn our eyes to Russia to see that the

wealth of extant knowledge is incapable of producing reasonably satisfactory social conditions in the absence of the necessary qualities of men.

Of such a change in personal character neither the accumulated knowledge nor its continued increase affords any evidence. The latter does, indeed, imply a certain racial quality, since, among the quite inferior races, knowledge tends neither to grow nor to accumulate appreciably. But in a given race the continued growth of knowledge is compatible with a generally inferior intelligence and its occurrence merely proves the existence of a certain number of intelligent individuals. And in comparing these latter with the thinkers of the past, the actual magnitude of their respective achievements must be considered in due relation to their respective opportunities and available means.

And here, as bearing on the present question, we have to note that the accumulations of the past—particularly the material accumulations—differ somewhat from those of the present in two respects. In the first place the remains of the past consist of products each of which is a manifestation of individual faculty. Each is the result of a separate creative act; and when the number of such products is considered in relation to the probable total population, some estimate can be made of the quality of that population. For instance, the Greek remains of the fifth century B.C. exhibit a vast number of works of architecture and sculpture of supreme excellence, each of which implies the existence of at least one artist of superlative genius with a number of assistants of first-class skill and talent. The vanished paintings of the same period—almost certainly of the same high quality as the sculpture—imply a further group of highly gifted men; the pottery—each piece designed and executed by an individual artist—demonstrates by its great quantity and artistic excellence, a further large group of men of skill and talent; while the literary remains reveal the existence of yet another large group of men of notable intellect. And when we consider the amount of highly-developed faculty implied by these remains in relation to the total population, and consider also their uniform excellence and the absence of debased and feeble work, we gather the impression of a generally high standard of taste and culture and of a population containing a substantial proportion of highly capable individuals.

The products which are distinctive of the present day

exhibit, on the contrary, not the results of separate acts but the results of the accumulation of knowledge. In a mechanism, for instance, the creative act of the exceptional individual is expended on the original experimental model; and even this act consists largely in the application and extension of knowledge already existing. But the model having been produced, its repetition involves no creative faculty and very little faculty of any kind. The steam-engine, the steamship, the power-loom, the dynamo, the telephone, each represents the attainment of a certain standard of knowledge; but that standard having been attained, multiplication of the mechanisms demands no more faculty than the very moderate amount that is required for the acquisition of extant knowledge. Indeed, the men engaged upon the making of mechanisms need not, and usually do not, possess that knowledge, but only the small fraction of it that is necessary for carrying out their particular shares in the construction. And since the inventor—by whom knowledge is advanced a stage—thus renders possible the execution of great works by the joint labour of a multitude of men of small faculty, it is not possible to estimate the mental advancement of modern man in terms of the products of his activity. It may, indeed, be objected that products similar to those of the past are still being created; that we still raise public buildings, bridges, monuments and similar works as did our ancestors. But in all these activities, with the possible exception of the Fine Arts, there is a tendency for original faculty to be superseded by knowledge. Even in productions so humble as boots and shoes is this the case; for whereas formerly a pair of boots implied the existence of a skilled bootmaker, it now implies the existence of a boot factory employing a multitude of workers, not one of whom is able to make a pair of boots.

The second respect in which the material accumulations of the present day differ from those of the past is that whereas the latter were final works the former are intermediate; they are means to the carrying out of further activities. The Great Pyramid, the Parthenon, or Rheims Cathedral exist as independent works apart from their ostensible functions; but railways, aeroplanes, hydraulic rams, or dynamos are means to some further result and have no separate validity. Whence it follows that whereas the final work could be judged in its relation to human faculty *per se*, the work which constitutes a means must be con-

sidered in terms of the contemplated end. And this brings out a further comparison between the past and the present which is very relevant to our enquiry.

The remains of antiquity constantly impress us with a feeling of wonder and admiration at the stupendous results achieved with the most inadequate means. The Great Pyramid was erected by men unacquainted with iron and possessed of only the most rudimentary mechanical appliances, and the works of antiquity of the Middle Ages and of modern times down to the end of the eighteenth century were executed with simple hand appliances and no power beyond that of human muscles. On the other hand, on considering the relation between means and result at the present time, that which will strike the thoughtful observer is the colossal amount of means and the amazing poverty of achievement. In many cases the contrast between means and result is ludicrous. It amounts to anti-climax, as may be seen if we consider a somewhat extreme instance.

Some years ago there was to be seen at Earl's Court a gigantic wheel. I cannot state its dimensions, but its size was so colossal that it rose above the tall houses of the district like a cart wheel among a group of flower-pots. Not only had it been constructed and erected; it was perfectly balanced in its bearings and could be rotated with precision by means of a motor appliance. Regarded as a piece of mechanism it was a remarkable and admirable work and a striking demonstration of the advanced state of mechanical knowledge.

And now, what was the function of this colossal and wonderful appliance? Its function was to furnish entertainment. And that function was discharged thus: The persons to be entertained ascended a lofty staging from whence they were able to enter one of a series of cars that were suspended around the periphery of the wheel. Having entered the car they sat down. The wheel was then rotated a few degrees until the next car was opposite the staging, when more candidates for entertainment entered. This proceeding was repeated until the original "entertainees" had been carried round somewhat more than a half circle, when their car arrived opposite a second staging. Then they came out and descended the staging. That was all. To characterize the entertainment as trivial would be inadequate; to characterize it adequately might not be polite.

But this much may be said: that the disproportion between the means and the result was ridiculous.

This is admittedly an extreme case. But it is not a solitary one. In numerous cases profound scientific knowledge is applied to the attainment of the most insignificant results. The remarkable application of physical knowledge which produced the phonograph has resulted in an appliance —the gramophone—by which music of the most debased type is disseminated broadcast; and the marvellous application of optical, chemical and mechanical knowledge embodied in a kinematograph has as its final result a form of popular entertainment adjusted to the intellect of a somewhat dull child of twelve. Nor is this disproportion between means and result confined to the production of amusements; it is equally apparent in the sphere of industry. The great factories by which the bulk of common commodities are supplied are mostly engaged in producing inferior imitations of hand-made products. By means of complex woodworking machinery is produced furniture immeasurably inferior to that formerly made with simple hand-tools. And the same is true of other products; clothing, boots, books and in fact most common articles of use produced with the aid of the most elaborate appliances, are admittedly inferior to those formerly produced with quite primitive means. The Book of Kells was written with simple reed and quill pens and little brushes, probably home-made. To-day, a gigantic plant, roaring night and day in great buildings, peopled with toiling multitudes, turns out millions of shoddy books, which the old-time scribe would have lifted delicately with tongs and deposited on the fire.

The truth is that by most persons, progress is estimated in terms of means rather than of result. The means become confused with the end. The visitor to some great printing works looks with awe on the giant Hoe machines, working with incredible swiftness and almost human intelligence. He is deeply impressed, and comparing them with the rude appliances of Caxton and Wynkyn de Worde, marvels at the progress of humanity. It does not occur to him to compare the products of the two sets of appliances; the dignified and beautiful volumes turned out by the old printers, with the *Tit-bits* and *Comic-Cuts*, the *Daily Mirror*, or similar productions which pour in a stream from the great rotary machine. Or again, the visitor to a paper-mill views with respectful astonishment the great Fourdrinier machine, with

all its wonderful and beautiful parts, moving in perfect co-ordination, turning out its great web of paper in five mile lengths at a speed greater than that at which a man can walk; and, comparing it with the little hand mould of the old-fashioned paper-maker, he thinks of the latter with something akin to contemptuous pity. It does not occur to him to compare their respective products, or to ask what is the actual function of this stupendous mechanism. If he did, he would find that its function is to produce the worst paper that has ever been made or that it is possible to make. And such cases might be multiplied indefinitely. If from the means which tend to engross our attention we turn to the actual achievement, the results of the accumulation of knowledge are apt to appear profoundly disappointing.

Nor is it only in respect of material production that this disproportion between means and result is evident. It is characteristic of modern activities in general. On all sides mountains are in labour and mice are being born. Consider, for instance, the case of education. An enormous apparatus of instruction exists, but the result is hardly appreciable. Those who served in the army found the bulk of the population, for whose benefit this apparatus has come into being, almost completely ignorant. The vast amount of instruction appeared to have had no sensible result. Especially is this lack of result noticeable in respect of technical education. Multitudes of Schools of Art and Crafts are scattered over the country and directed by great central departments. But where are the artists and craftsmen ? Artists, indeed, there are, but few of them have ever seen the inside of an Art School; and if we visit one of the latter institutions, we find it mainly occupied by young women who have spent from two to seven years within its walls. And what are these young women doing ? The natural reply would seem to be that they are learning to become artists. But they are not. They are learning to be Art School mistresses. They are acquiring the ritual of the Board of Education. And the same is true in regard to the Craft Schools. With a few exceptions, such as the Central London School of Arts and Crafts, their instructors are not craftsmen but Technical School masters, and the pupils, in their turn, become, not craftsmen, but Technical School masters. We realize the absurd disproportion between means and result when we encounter one of these students in a museum, photographing the productions of some old village potter, or making elabor-

ate measured drawings of a piece of wood-work executed a century or two ago by a common country carpenter. Whereas, formerly, accomplished craftsmen were produced easily and abundantly by the simple methods of apprenticeship, the present gigantic apparatus can produce nothing but the Technical School instructor, who is himself incapable of doing an ordinary job under normal trade conditions.

Thus the appearances suggest that the accumulation of knowledge has acted in a manner somewhat analogous to the accumulation of money. The wealth of means appears to have superseded and rendered unnecessary individual faculty; in the absence of which knowledge has, nevertheless, continued to grow as interest on capital. The condition is analogous to that of a poor, but capable and energetic man, who slowly accumulates a small fortune, which he bequeaths to a less capable and less energetic son. In spite of inferior energy and ability, the latter continues to grow richer, for the interest on his capital yields an income and makes capability and effort less necessary.

Our survey, then, seems to emphasize the contrast between the past and the present: it seems to confirm our impression that whereas the past was distinguished by great achievement with insignificant means, the characteristic of the present is colossal means with insignificant achievement. But the relation between means and achievement is the measure of human capability. From which it seems to follow that the accumulation of knowledge, so far from indicating an advance in the intrinsic qualities of man suggests rather a decline in personal capability and initiative.

Evidence from Social Phenomena.

From this indirect and somewhat unsatisfactory evidence of the present quality of the population, we may now turn to that of a more direct kind; and in passing, we may notice the aspect presented by the masses of men assembled for military service during the war. In the earlier days that aspect was somewhat misleading; for the pick of the manhood of the country hastened to join the colours. But the quality of the unselected units formed under the Military Service Act occasioned surprise and concern to those who had to instruct them. Nor was the aspect of the army as a whole encouraging. Its administration was largely in the hands of men manifestly unequal to their responsibilities;

its methods were often extremely inadequate, and its business and financial arrangements excited the derision of all men of affairs who joined.

But these are mere impressions which cannot be reduced to a quantitative statement. Let us proceed to take evidence of a more definite kind. And first let us see what suggestions are offered as to the quality of the population by prevailing social conditions.

A glance at the more conspicuous social phenomena of to-day at once brings into view a vast number of men of somewhat rudimentary intelligence. The organized body of manual workers represents a considerable proportion of the total population; and that body is engaged in certain collective activities which seem to imply a somewhat extreme incapacity for reflection. The accepted programme of that large body is the establishment of a social system in which individual ownership of the means of production shall be replaced by State ownership. That is to say, it aims at replacing an institution of proved efficiency by one of proved inefficiency, though the success of the one and the failure of the other are daily before its eyes; and it aims at replacing an employer whom the employee can, and does, largely control by one which would be completely uncontrollable and would possess unlimited powers of coercion and tyranny.

With the more "advanced" syndicalist and revolutionary programmes it would be unfair to tax the main body of labour. Yet even these schemes, which, with their conjunction of violent activity with ill-defined purpose, are symptomatic of unsatisfactory intelligence, receive an amount of support from the manual workers that reflects little credit on their intellect.

Moreover, we cannot but notice that, in spite of all their complaints as to the hardness of their conditions of life, they appear to be oblivious of the chief cause of their troubles—their incorporation as mere "units of production" in gigantic aggregates. Neither individually nor collectively through the unions have they made any effort to regain their liberty either as free workers or collective owners; though the money spent on a great strike would be sufficient to establish co-operative works and factories on a quite extensive scale.

But our inference as to the existence of vast numbers of mentally incapable persons is evidently also that of the governing body. For if we examine recent Governmental activities, apart from the war, we find them to be concerned

almost exclusively with the affairs of this class. The purpose disclosed by the general course of recent legislation is the production of social conditions which shall be adjusted to the needs of incapable and unintelligent persons; the modification of society, in fact, to render it suitable for the mentally unfit. Its financial activities are adjusted to the needs of those who, incapable of completely supporting themselves, require to be helped out by the subscriptions of their fellow-citizens; and its educational programme is concerned, not in providing facilities for those who are seeking knowledge, but in forcing knowledge upon unwilling, and presumably, unsuitable subjects. Moreover, in its general conduct, the Government seems to assume that it is dealing with a population whose units are unfit to be trusted with the conduct of their own affairs. It directs and controls their shopping, their travelling, their business activities, their very diet and domestic habits; and though, in these latter respects, it certainly underestimates the capacity of the average individual, its belief in the existence of a vast population of low mental quality is doubtless well founded.

Indeed, its own existence is fairly conclusive evidence of a widespread lack of intelligence and character. For surely no type of government could possibly be less acceptable to an even moderately intelligent population than that which has come into being since the war. The economic conceptions which underlie its activities are incredibly rudimentary. If bread is too dear, what more simple than to sell it below cost price ? If railway transport is too expensive, how simple is the remedy of reducing freight charges below working expenses ! If William Brown, the civil engineer, or lawyer or doctor, has more money than he needs, while Thomas Smith, the coal-miner, has less than he wants and roars for more, how simple is it to take some money out of Brown's pocket and put it into Smith's ! These obvious remedies would occur to an intelligent child; and indeed, they represent the economics of the nursery. And, when it is added that this Government, which thus unskilfully manipulates the affairs of the nation, has gathered round itself an army of officials numbering hundreds of thousands by whom the earnings of the industrious and thrifty are devoured; it will be agreed that the existence of such a governing body is conclusive evidence of a generally unsatisfactory level of intelligence.

Evidence from Current Social Conceptions.

The suggestion of poor general intelligence which appears in contemporary political movements and institutions is enforced by the prevailing social conceptions. The universality of collectivist modes of thought at the present day with a resulting individual passivity and inertness is one of the most striking of these phenomena. The idea of any person who wants anything done doing it for himself appears to be almost extinct. To the modern mind, the necessity for any action or thing, any service or commodity, immediately suggests the establishment of a ministry or other State agency for supplying the need. The old conception of the Government as an institution having certain definite and circumscribed functions has given place to the collectivist conception of "the State" as the active part of the community—a sort of political clergy—with an amorphous residue of effortless individuals—the political laity—whose function is passively to receive all benefits and the means of subsistence from the State.

The importance, in relation to our present subject, of this prevalent state of mind is in the evidence that it affords as to the general mental quality of the population. For the implied belief in the possibility and even desirability of the conduct of all human activities by "the State"—that is, in effect, by the professional politicians—is based neither on reason nor experience. There are no grounds whatever for supposing that the body of politicians is competent to undertake such activities as the supply of dwelling-houses, the distribution of commodities, the conduct of transport, the regulation of manufactures, the training of artisans and the numberless other activities which are being transferred from the individual to the State. Nor has the belief been generated by experience, for the inferiority of the State to the individual has been a commonplace from the time of Samuel Pepys to our own. Everyone who comes into contact with a Government department notes its incapacity as compared with an analogous private concern. The administrative methods of the army were the laughing-stock of every business man who joined. Constantly was the remark heard from officers that "if a business firm were to carry on in this fashion it would be bankrupt in a week."

Moreover, the inefficiency of the "State" is the subject

of general comment in conversation and in the Press. The incredible waste and thriftlessness, the inflated departments, the delay and mismanagement which characterize its proceedings are matters of daily comment and protest in the newspapers and wherever men congregate. But yet the inevitable conclusion fails to be extracted from the data. A correspondent of a daily paper writes a scathing letter in condemnation of the inefficiency of certain Controllers. But what is the remedy that he proposes? Incredible as it may sound, his suggested remedy is the appointment of a new Controller to control the Controllers! And absurd as it appears, this is the general attitude of the population. The glaring failure of "the State" instead of suggesting the relegation of the Government to its proper functions, suggests the establishment of new departments—the further extension of the system which is admittedly a failure. But this incapacity to draw an obvious conclusion from facts known and admitted implies a general feebleness of reasoning power and suggests that the motive force behind the actions of men is impulse and emotion rather than rational thought.

And coincident with this growing collectivism is a tendency to coercion. Alike in public and in private life, we note the striving of individuals and parties to get possession of their fellow-men and manipulate them as though they were pawns or puppets. In the sphere of Government we observe the holders of public posts reaching out for powers equal to those possessed by the potentates of the ancient Orient. Each wants to be a dictator, an autocrat. One demands the power to control and regulate all the locomotive activities of the population. Another desires to take possession of all the younger members of the community, to control the kind and amount of knowledge which they shall acquire and to determine the circumstances under which they shall acquire it, regardless of their own wishes in the matter or their individual personalities, circumstances or needs. And so with semi-official individuals and bodies. The political strike and the syndicalist programme express a hankering after the power to control and coerce the rest of the community.

Nor is this state of mind noticeable only among public men. Private individuals and groups show the same eagerness to control and manipulate their fellow-men. The discoverer of some new benefit is not content to offer it and recommend it to his fellows; he demands compulsory powers.

Thus a writer in one of the Reviews, complaining of the defective character of the education furnished by Public Schools and Universities and made virtually obligatory by the curricula of the Civil Service and other public bodies, lays down a new—and in many respects excellent—educational programme. But he is not content to advocate it, to recommend its excellencies and to suggest that such education should be made accessible to all who desire it. Not at all. His demand is that " the State curriculum, determined as above," shall be " enforced throughout the kingdom." And so it is with all would-be reformers. Just as there has grown up what we may call the " Ministry habit," with a mode of thought which conceives social reforms and benefits exclusively in terms of Governmental activity, so is there growing up a tendency to think in terms of compulsion. And this compulsion is taking a form different from anything known in this country since the establishment of modern conditions.

Let us note the difference.

In all settled communities the Government necessarily has certain compulsory powers. The maintenance of Law and Order depends upon the powers of the community to enforce upon individuals such conduct as shall leave the remainder free to pursue their lawful occasions. Such powers may be very far-reaching. They may include such measures as compulsory vaccination, inoculation, notification of disease, or other measures whereby an individual is prevented from becoming a source of danger to the health of his fellows, or compulsory military service, by which the individual is compelled, at great loss and personal risk, to assist in maintaining the integrity of the State.

But in all these cases, the compulsory powers are exercised on the individual only in those respects in which he is acting as a unit of the State—that is to say in a public capacity, when his conduct so far affects his fellows that they have an obvious right to control it.

But the new compulsion goes far beyond this. It invades the private life of the individual and lays down the details of his domestic activities. The new prohibitive laws of the United States, for instance, are not directed against drunkenness—which is an offence against the community—but constitute a proceeding by which one group of citizens claims to dictate to another group the details of their diet. The refusal to permit an individual to take a glass of beer with

his lunch is based not on the claim that such an act is injurious to his fellows but that the individual himself is better without it.

It is difficult to see where this kind of action is to end. We shall all admit that most men would be better without alcohol. But what of tobacco? That is admittedly a poison pure and simple. And then there are tea and coffee, both drugs whose effects are deleterious and which have no pretence of dietetic value. Should they not be prohibited too? And then consider what an indigestible thing is a cucumber!

In this country we have not yet advanced—or retrogressed—to prohibition. But we are well on the way. A party of American prohibitionists, having succeeded in securing the enaction in their own country of laws exhibiting conceptions of personal liberty calculated to make the Pilgrim Fathers turn in their graves, have come to this country with the avowed purpose of capturing the liberties of Englishmen; while native egotists, in formidable numbers, are in full cry after the same quarry. But this itch to manipulate, to control and to coerce, is not confined to the so-called "temperance" extremists; the correspondence columns of the daily Press reveal the existence of multitudes of individuals who are possessed by a craving to direct and control the actions of their fellows; to settle the age at which they may marry, to fix conditions subject to which permission to marry may be granted or withheld, to exert pressure on bachelors by taxation or otherwise, to obtain control of the children, to set up compulsory physical training and in other innumerable ways to take possession of the citizen. And then, as a complementary phase of the same state of mind, there is the passive acceptance of the régime of meddlesome compulsion under which we are living.

The general truth which emerges from these considerations is that a great and ominous change is coming over the population at large. Personal liberty is becoming less and less valued. The desire now is not for liberty but for power. Everyone wants to be a dictator. And with this craving for power is coupled a curious lack of imagination and the capacity for generalization. For if we examine the proposals of the various exponents of the coercive régime we note that each conceives himself as the agent of the compulsion which he advocates. He thinks of himself as imposing his will upon others. Never does he appear to become conscious of

the reality; of the fact that under the conditions which he seeks to establish, he himself would degenerate into a puppet moved at the will of a dictator.

From which general truth there seems to follow a corollary still less encouraging; which is that the prevailing mental type is deteriorating. In the past, the watchword of social advance had always been "Liberty." The milestones of Progress have marked the stages of emancipation of the individual and the limitation of the powers of tyrants. The desire for liberty is characteristic of the highest type of man; of the man, who, confident of his own powers, asks nothing of his fellows but the freedom to direct his own destiny, and who is willing that his fellows shall, in like manner, be free to live their own lives without hindrance from him. The desire for power, on the other hand, is characteristic of a man of lower type; of a man who, insufficient to himself, seeks to get something from his fellow-men, and to get it, moreover, without their consent or acquiescence. And while a régime of liberty tends to create an atmosphere of peace, of friendliness and concord; the pursuit of power tends to create an atmosphere of rivalry and antagonism.

And such is the state which is shaping before our eyes. The separated classes, each of which seeks to impose its will on the others, display a manifest mutual antagonism. The sentiment of personal liberty dwindles and a once-robust people develops a sheep-like submissiveness. The population of this country, which in the past successfully resisted the attempted tyranny of kings, is rapidly succumbing to a tyranny of its own creating. Apparently, by its own choice, it is becoming a servile state.

Thus, in respect of the intrinsic changes in man, the result of our survey is unsatisfactory. The advance in physical and mental type which lifted man from the sub-human to the human level and from primitive barbarism to civilization does not appear to have been maintained. There is no reason to believe that the man of to-day is in any respect superior to his ancestors of the remote past; in certain qualities—such as the æsthetic, for instance—there appears to be a manifest inferiority; while a consideration of the phenomena already noted gives us reason to suspect that the general average of intelligence is lower.

In so far, however, as there appears to have been definite retrogression the change is recent and rather sudden; an encouraging circumstance, since it suggests the possibility

of locating the cause and leads us to hope that the evil may be temporary or remediable. In later chapters an endeavour will be made to trace the cause of such decline and to discover the influences which operate unfavourably on the intrinsic qualities of man.

Effects of Progress on Civilization.

We may fittingly conclude this survey by asking to what extent Progress has tended, and still tends, to favour the growth of civilization. The latter we have agreed to regard as "the sum of those adjustments by which men are enabled to live in large aggregates"; and we have noted that the adjustments in question mostly resolve themselves into the acquirement by the units of the aggregates of a "public spirit"; of the habit of renouncing such egoistic purposes and activities as are antagonistic to the common welfare in favour of purposes and activities which conduce to general well-being. There is, as I have already observed, a tendency to confuse the accumulated by-products of man's existence with his own advance and to accept the wealth of knowledge and other means as evidence of progress in civilization. But it is nothing of the kind. The root of civilization is in man himself; and satisfactory life in large aggregates is possible only on condition that each of the component units habitually and completely recognizes the rights of all the others and is inspired by an active desire for their well-being.

Looked at in this light, the aspect of Western civilization is somewhat disturbing. The adjustments by which the existence of the nations has been made possible do not appear to be growing more perfect, but, on the contrary, appear in certain directions to be failing. There appears to be, in fact, a distinct tendency to social disintegration. Not only in our own society, but in others of a similar type, we see forming within the main aggregate minor aggregations, each antagonistic to the others and all antagonistic to the welfare of the whole community.

The process appears to have begun when the trades unions—originally quite legitimate and useful associations for furthering the common welfare of their members—began to amalgamate and take on political functions. It advanced a stage when the Labour Party—a political party concerned not with the welfare of the community but with that of a single class only—was formed. And it

has further advanced with the evolution of "Labour," a political body antagonistic as a whole to the rest of the community and of which a considerable section is frankly and openly hostile to society. The formation of this anti-social body within the State has been followed by that of other bodies, unions whose purposes are purely egoistic and more or less antagonistic to the remainder of the community. Moreover, these egoistic groups tend to generate others by reaction. Thus, the employers of labour have formed associations to combat the joint actions of the workers, and the "Middle Class," though normally a heterogeneous mass of citizens having no common interest but that of citizenship, has acquired a common interest in that of its members suffer from the anti-social activities of organized Labour; and already there has come into existence a Middle Class Union whose purpose is to resist the aggression of the manual workers; a purpose which, though defensive, is nevertheless egoistic in respect of the class and antagonistic to the rest of the community.

Thus, in place of a single aggregate of men, all inspired with the single purpose of the welfare of each and all, we see a society which is disintegrating into a group of aggregates, each purely egoistic, each concerned exclusively with the welfare of its own members, and antagonistic or, at best, indifferent, to that of the other units of the Society. A spirit of mutual hostility and of collective selfishiness and greed replaces the patriotism, public spirit and citizenship on which civilization grew and on which alone it can be maintained.

This commencing disintegration of Society suggests the question whether complete civilization is possible in an aggregation above a certain size. In quite small aggregates the special adjustments which constitute civilization are not required. But as the size of the aggregate increases they become at once more necessary and more difficult to effect. We realize this very clearly if we note the prevailing conditions as we pass through a tract of country inhabited by an uncivilized people, such a region, for instance, as Tropical Africa. Here, in the hamlets and small villages we shall find the conditions fairly satisfactory. Hygiene and public cleanliness have received ample attention, and for the maintenance of order and the security of person and property, the simple rule of the village head-man seems quite adequate. The larger villages exhibit conditions which are obviously not so good. They are noticeably dirty and insanitary,

and the control of the head-man over the larger population is less complete. And when we come to the large towns we find the conditions definitely bad. The absence of any organized arrangements to deal with filth and refuse makes the streets insufferably noisome and insanitary. Flies and other vermin abound, infectious and other communicable diseases are constantly prevalent, and the lack of any efficient police or judicial machinery makes life and property relatively unsafe.

But, indeed, the statement needs no proof. It is obvious that as aggregations of men enlarge, more complex relations arise and call for more elaborate co-ordination. And this co-ordination may conceivably be effected in one of two ways: by the establishment of a specific co-ordinating mechanism, or by the joint activities of the individual members of the community. The first method is that of collectivism. It involves a complete centralization of directive power with the establishment of a vast system of ministers and controllers, each invested with the power to initiate and control all human activities and to conceive and execute all the adjustments between man and man and between man and his environment which are necessary for the maintenance of the social equilibrium. But this method is manifestly impracticable. The concious, purposive direction of social life in an aggregate of millions of men is a task far beyond the powers of the human intelligence. The infinitely multitudinous factors and their inconceivably complex actions and reactions render the causation of social phenomena so involved as to exclude the possibility of prevision; and in the absence of prevision no rational initiative or control is possible. With the minor evils of the method we need not concern ourselves; the creation of a great unproductive class of officials, supported by the earnings of the industrious; the tendency of the directing body to develop egoistic instincts and to form an independent self-regarding unit; or the creation of endless public posts by which the State tends to become a mere feeding-ground for political adventurers. The important fact is that the method is not practicable. The complexity of social life in a great aggregation of men, which is the reason for its existence, makes it impossible. And this conclusion, at which we arrive by a consideration of the data, is supported experimentally. The collectivist system is now in operation; and it is failing disastrously before our eyes. The

present confused social conditions coincide with the establishment of centralized social control.

The second method is that by which civilization has evolved from barbarism; the development by individual men of the social instinct—the habit of subordinating egoistic desires and purposes to considerations of general welfare. But as communities become larger and the necessary internal adjustments grow more complex, social equilibrium can be maintained only on condition that the units of the community undergo a like evolution. The growing complexity of the aggregate must be accompanied by a corresponding growth of complexity and of the essentially social qualities in the units. In a later chapter reasons will be advanced for believing that such a change does not tend to occur, but that, on the contrary, increasing complexity of the aggregate tends to be accompanied by degradation of the unit. Here we have merely to note that, in fact, such a change has not occurred and is not occurring, but that, so far from advancing, civilized man appears to be, in certain important respects, retrogressing. We have but to glance at the prevailing social conditions to become aware of the totally inadequate quality of the population. On the one hand, the widespread "profiteering," the greed, the selfishness of individuals, the sordid scramble to get rich at any cost to the general welfare in which all classes are engaged —manufacturers, retailers, workmen, officials; on the other hand the segregation of particular classes into egoistic and anti-social bodies to which I have already alluded; present a picture the very reverse of that which would be exhibited in a community in which civilization was advancing. In our own society there can be little doubt that the community has outgrown its adjustments. The increase in the bulk of the population has not been accompanied by the necessary improvement in quality. Whether this discrepancy between size and quality is inevitable, or whether, under favourable circumstances, a community may increase indefinitely and still preserve its adjustments unimpaired, is a question that may be answered when we have more closely examined the available data. The increasing size of human aggregates is evidently an unfavourable condition since it involves increased complexity in social arrangements; and it may be that more developed populations would find a solution of the difficulty in diminished centralization. But we are not at present concerned with constructive problems.

Our survey of the later stages of Human Progress has thus yielded a somewhat discouraging result. We find Progress limited to those extrinsic changes in the condition of man by which he has acquired increased control over his environment. Intrinsically he has not appreciably advanced and in some respects he has retrogressed. And meanwhile, coincidently with a great increase of the population is a noticeable failure in the adaptation of the units of that population to life in large communities. There are visible signs of social disintegration and of the approach of further changes which may profoundly disturb the present order and radically alter the structure of human societies. To some thinkers the present social instability and unrest have suggested the possibility that our civilization has reached the term of its existence; that we are on the eve of one of those great periodic transformations by which in the past civilization has changed in type and in locality. But, however this may be, it is certain that the edifice of our society shows ominous cracks and settlements. The Social Organism is in an unsatisfactory state. Whether that state is analogous to senile decay, or whether it is due to a transitory and curable malady, it will be our task in the succeeding chapters to endeavour to ascertain. And, since the consideration of possible remedies must be preceded by a diagnosis as exact as is possible; and since an estimate of morbid conditions must be based upon a clear understanding of normal conditions, we will begin with an examination of the Social Organism itself.

CHAPTER III

THE AFFINITIES OF THE SOCIAL ORGANISM

The conception of society as an organism was first, I think, put forward by Spencer in "Social Statics," and the idea was elaborated subsequently in "The Principles of Sociology" and in his essays. But it has been adopted, with some avidity, by various groups of thinkers, and especially by those who incline to collectivist or socialist views and who are not ordinarily ardent Spencerians.

The exact meaning which these thinkers, including Spencer himself, attach to the term is involved in a certain degree of obscurity. Society is referred to as an organism—the

Social Organism—and a certain similarity to other organisms is implied or asserted; but the precise nature of the resemblance affirmed is not clear, even in the writings of the usually lucid and exact Spencer. Whether a society is regarded as completely comparable to other organisms or whether the comparison is merely illustrative as exhibiting a certain parallelism of phenomena, is not quite evident. It is true that Spencer definitely asserts that a society *is* an organism; and the general tenour of his language leaves little doubt that he wished to be understood literally. Yet a consideration of his argument in its details leaves us with the impression that he was pursuing an interesting analogy between two things which are not completely parallel.

It is important that we be quite clear at the outset as to the nature of the comparison which we are making and the degree of resemblance which we are affirming; whether, between a society and other organisms, we are asserting merely the existence of an analogy, or whether we are affirming the existence of that more complete and real resemblance implied by the term "homology."

Let us illustrate the two kinds of resemblance by two cases, which we will call A and B. In A we will compare a bird with an aeroplane: in B we will compare it with a bat.

A. The comparison of a bird with an aeroplane exhibits resemblances which are numerous and striking. Each is a self-contained mechanism capable of raising itself into the air and of moving rapidly through that medium in a determinate direction. Each generates the necessary energy for this purpose by converting into motion the latent heat liberated by the oxidation of certain carbon compounds, introduced into the mechanism from without (in the one case called "food" and in the other "fuel"). Each requires as a condition of its efficiency the maintenance of a certain internal temperature; each consumes oxygen and gives off carbon dioxide. Both are equally amenable to the laws—chemical, mechanical and physical—affecting flight.

It will therefore be seen that the analogy between these two forms is very close. But it is equally obvious that the two things thus compared are not of the same order. In spite of the many resemblances, it is clear that we cannot argue from the one to the other without great reservations: that we cannot say that what is in general true of a bird is true of an aeroplane. No one expects a small, new aero-

plane to grow into a large one, or to replace its worn parts by interstitial repair while resting; nor does anyone expect a Handley-Page machine to deposit eggs and hatch out a brood of scouts. It is manifest that the resemblances are limited to certain functional activities, while in other respects there is no similarity at all.

B. If, on the other hand, we compare a bird with a bat, we are subject to no such limitations. Not only are the functions that subserve flight similar, but all other functions are similar in essentials; and running parallel with these functional analogies are corresponding resemblances of structure. Broadly speaking, and disregarding small differences of detail, we may say that what is true of a bird is true of a bat.

The above instances thus exhibit two kinds of comparison; which in A is that of two fundamentally different things which have certain points of resemblance; and in B that of two fundamentally similar things which have certain points of difference. In both there is analogy; in the latter only is there homology.

Now, it is essential that we settle which of these two modes of comparison we are adopting, and that we do not inconsistently oscillate between the two. If we assert that a society is an organism, we are predicating a resemblance between it and all other organisms which is essential and real: that they are things of the same order and that, notwithstanding certain differences, they are fundamentally alike in nature.

A necessary preliminary to the enquiry is the definition of the terms employed. What exactly do we mean by the terms "society" and "organism?"

By a (human) society, I mean a natural and permanent aggregation of human beings of a racial type so similar as to imply actual kinship and to warrant a belief in community of ancestry.

An organism I understand to mean any living entity.

The question as to whether a society is a species of the genus organism, as above defined, involves the preliminary question: Is a society truly an entity?

This question has been argued with sufficient completeness by Spencer, but it will not be amiss to examine the data afresh.

A society has been defined above as a natural and permanent aggregate, thereby differentiating it from artificial or

temporary collections of men such as regiments, schools or mere crowds, none of which could be considered to be a true entity. It will be observed that a society is not only a permanent aggregate, but that the units of which it is composed are in certain definite relations and that they have a similarity of type which implies constancy of those relations throughout the past life of the society and confers upon the aggregate certain characters which distinguish it from other aggregates. Moreover, a society is capable, in certain circumstances, of acting as a whole; of migrating bodily in a purposive manner and of coming into conflict with other societies; and it is obvious that the members of a society not only regard themselves as units of an aggregate but conceive the society to which they belong as an entity having a real and independent existence. And not only is this true of human societies; the same differences between the natural and artificial, the permanent and the temporary hold good in aggregates of the lower animals: between a chance herd of cattle at a market or on a grazing farm, mere temporary collections of unrelated individuals, and a natural herd of wild cattle of which the individuals are physically akin and bear to one another certain definite and permanent relations.

It may therefore be concluded that a society is truly an entity; and, since the units of which it is composed are admittedly living beings, the conclusion is unavoidable that it is a living entity, *i.e.* an organism.

And this conclusion is borne out by the properties of the society; its mode of origin and growth, or instance. Like all other organisms, it is, in its typical form, as seen in the populations of oceanic islands, derived from two primitive units, male and female, from which it has multiplied through the family and the tribe to the nation or race. It is thus not only characterized by the power of growth, but that growth exhibits a progressive series of phenomena similar to those exhibited by other organisms in the course of their development.

Having decided that a society is an organism, the next question that arises is, What is the character of this organism? And what, if any, are its affinities with other organisms? Is it a thing apart, an organism *sui generis?* Or has it some affinities with other organisms?

If we take the first view and regard a society as entirely unlike all other organisms, we seem to be committed to

somewhat of a contradiction of terms; for the statement that a society is an organism is a statement that it is a species of the genus organism; which seems to involve a generic resemblance to other organisms. Naturally, in an organism of so special a character, presenting such wide differences from all other organic forms, we should not expect to discover resemblances so close as to enable us to fit it into any vacant niche in the system of classification. But we may reasonably expect to find that it has a recognizably greater resemblance to one rather than another of the various known types; a resemblance which should become manifest on detailed comparison. And since its constituent units are animals, and we may consequently expect to find its affinities among the members of the Animal rather than the Vegetable Kingdom, we will take a preliminary glance at the former; it being understood that we are at present examining its properties as an aggregate, without reference to the separate properties of the units.

Animals are divided by zoologists into two main groups, the simple and the compound. In the first (Protozoa), each animal consists of the equivalent of a single cell, a mass of protoplasm, usually minute in size, and either quite simple and practically structureless, or, if it has any parts, these are merely portions of the general protoplasmic mass which are of rather greater of less density than the rest. There is no subdivision into subordinate units, and no true sexual reproduction by ova and spermatozoa.

In the second group (Metazoa), to which belong most of the forms known as "animals," including man, himself, each individual is built up of a multitude of units (cells), each of which resembles, and is analogous to, a protozoon. Reproduction is usually of the sexual kind and occurs by the separation of specialized reproductive units—ova and spermatozoa—the union of which results in the formation of a special reproductive form, the embryo or larva, which has properties and characters different from those of the mature form, or adult.

But a metazoon is not a mere colony or aggregate of protozoa. In the compound animal, the primitive, protozoan cells are variously and profoundly modified in structure and function to form "tissues," which are masses of cells, all alike in structure and function, forming a uniform substance. And these tissues are arranged in definite masses known as "organs"; structures whose function is the collec-

tive function of the component modified and specialized cells. Thus, certain cells become elongated in form and acquire increased power of altering their shape. Their protoplasm becomes more "contractile," at the same time, and in proportion, losing its other functions—sensation, secretion, digestion, etc.—which are not now required. These altered cells are called muscle cells, or fibres; and by their aggregation they form the tissue called muscle; a tissue characterized by the power of changing its shape, in accordance with the properties of its units. And just as those units, in thus becoming specialized for a particular function, have lost all their other functions, so muscle tissue is devoid of other functional powers. It has no power of sensation, digestion, assimilation or secretion. It can only move. All other functions necessary for its existence have to be performed for it by other tissues consisting of cells specialized in other directions. Muscle tissue is accordingly formed into organs called muscles, whose function is purely motor.

In like manner other cells become specialized in other directions. Some acquire increased chemical functions, while losing the powers of movement, sensation, etc., and, becoming aggregated, form epithelium and other glandular tissues, of which are built up the organs called glands. Other cells specialize in the functions of sensation and conductivity, becoming nerve cells and fibres, and forming, when aggregated, into tissues, nerve centres, nerves, sense organs and other terminal structures. And so with the other cells of which the rest of the organs are built up.

We thus see that, while the Protozoa are characterized by being formed each of a simple mass of undifferentiated protoplasm and being each a simple free unit endowed with all the functions of a living animal, the Metazoa are distinguished by being formed of a multitude of such units specialized into tissue elements and aggregated into tissues, of which are formed the various organs by which the different functions of the body are carried out.

Considering these two main divisions of the Animal Kingdom, we may now ask whether the Social Organism has any analogies with either, and if so, with which.

In respect of the Protozoa the answer is obvious; for the latter are organisms of ultimate simplicity, unresolvable into any more simple structural constituents, whereas the Social Organism is admittedly a compound form resolvable into a

multitude of units. Excepting that both are living entities, there is no resemblance between them.

Let us now turn to the Metazoa and consider whether in that group we find more complete analogies with the Social Organism. In Spencer's exhaustive, elaborate and ingenious comparison of the social with the individual organism, we note that the latter is referred to in terms implying a high degree of development. The likeness of a society to an organism is found in its "organization," in the division of labour, in the mutual dependence of its various parts. Spencer plainly refers to "organs": organs of nutrition, of protection, of distribution, of direction and communication, analogous to the alimentary, circulatory and nervous systems. Especially emphatic is he in respect to the relation between the division of labour and the reciprocal services of the various parts of a society, and that specialization of function in the organs of the higher animals to which the term "physiological division of labour" is applied. "Scarcely," he says, "can I emphasize sufficiently the truth that, in respect of this fundamental trait, a social organism and an individual organism are entirely alike."*

Now this fundamental trait in which the individual and the Social Organism are asserted to be "entirely alike," is also the fundamental trait of the Metazoa, and especially of the higher Metazoa. And since this trait, the division of labour and the reciprocal service of specialized organs, is the one which has been made the basis of comparison between the individual organism and the social organism, it follows that such affinities as the latter has with the former are with that group forming the higher Metazoa.

To this view there is one objection, which, it seems to me, is so fundamental as to be absolutely destructive. The Social Organism is an aggregate of units which are all alike. Among them there are no structural differences whatever. The only appearance of structural difference is that which separates them into male and female; and that this is not a real difference: that the two forms are but complementary and alternating forms of the same type, is made evident by the fact that each form is at once the offspring and the parent of the other form. Not only has the Social Organism no tissues; it has no tissue elements. Its entire mass is an unorganized parenchyma of undifferentiated units, each of

* "Principles of Sociology," vol. i., part ii., p. 479.

which is, biologically speaking, a repetition of all the others, and all of which are so totally devoid of any specialization as to be fully capable of free existence apart from the aggregate.

To this it may be objected that there really is a division of labour in a society, and that the divided labour is carried on by different types of men; that there are kings and carpenters, archbishops and blacksmiths, and that these are specialized units of which the organs of the social organism are formed. But this is a fallacy, born, as so many fallacies have been, of the careless use of metaphor. "Division of Labour," as applied to the organs of the individual body, is a happy phrase borrowed from Social Science, which expresses neatly enough the analogy in the allocation of function in organisms and societies respectively. But the analogy exists only up to a certain point. Physiological division of labour is the correlative of profound structural specialization. Social division of labour connotes a merely temporary allocation of function unaccompanied by any structural differentiation. The most searching examination of a nude body would fail to show whether it was that of a bishop or a book-maker, widely different as are the "organs" of which they are units. A carpenter is not in any way structurally different from a mason or a potter, and each could exchange functions with the other. Nor are the social units constant in their functions: a civil service clerk becomes a colonial governor or ambassador, a lawyer or a merchant is transformed into a minister of state, an engineer's fitter into a legislator, a shopkeeper into a financier and any of them into a nobleman. This instability is in complete contrast to the immovable stability in type of the units of the individual organism. In the latter not only is a muscle cell, for instance, radically unlike a nerve cell or a gland cell; that unlikeness is permanent. A muscle cell comes into existence as such and as such remains for the term of its existence, incapable of transmutation into any other kind of cell. And so with all the others. Each kind of tissue element acquires its special character during embryonic life and is thereafter fixed and unchangeable. Also it may be noted that a true tissue element is incapable of existence apart from the aggregate.

It thus appears that the comparison between the Social Organism and a compound individual organism of a high type cannot be maintained on the plane of comparison that

we have adopted—that of things which are fundamentally similar. No such fundamental similarity exists, but there does exist a fundamental unlikeness. It may be advanced that, nevertheless, there is in a society a division of labour; that definite functions are allocated to certain groups of units and that these functions are exercised by institutions which have many resemblances to organs and which have come into being by a process of integration characteristically organic; and Spencer's elaborate exposition may be quoted in evidence. With this we will deal anon; but first we will pursue our present argument to its conclusion.

We have seen that to a protozoon the Social Organism has only one point of real resemblance; it is a living entity. Otherwise it is entirely unlike. We have also seen that with a metazoon it has this same community of nature with the further resemblance that each is an aggregate of living units. Beyond these two characters it has no resemblance to a metazoon. Is this, then, the limit of its likeness to an individual organism, or is there any other organic form to which it bears a yet closer resemblance ? Let me repeat that we are looking only for general—but essential—similarities, and that we are primarily concerned with a society as an aggregate.

We have disposed of the simple organisms (Protozoa) and the compound differentiated organisms (Metazoa), and have found analogies only of the most extreme generality. There remains a group of animals on the border-line between the two: the Sponges, classed by some authorities as compound Protozoa, by others as a low type of Metazoa and by yet a third as a group separate from both, under the name of Parazoa.

The characteristics of the Sponges are briefly as follows:—Each sponge is an aggregate of units of a definitely protozoan type, but not all alike; some—the " collared " cells—closely resembling certain flagellate infusoria, others resembling amœbæ. The organism is of a definite, though sometimes irregular, shape, and has a definite internal structure, exhibiting a system of branched canals, which open on the surface either in small openings (inhalent pores) or large apertures (exhalent openings, or oscula). There is a tendency to an elementary tissue formation, the exterior, for instance, being clothed with something like a pavement epithelium; but the units are little altered from the free protozoan type, most of them having some power of movement and some

having the power of migration within the organism; some, at least, obtain their own food from the sea-water in the canals, and it has been stated with probability, that these are capable of existence in a free state. The soft body-substance of the sponge is supported on a skeleton or framework of lime, silica or keratode—produced by the organism by a species of secretion—and sexual reproduction is effected by means of ova and spermatozoa, the product being an embryo having its own special form and properties.

Such being the characteristics of the Sponges, to what extent do they agree with those of the Social Organism? It will be seen at once that the disagreements are less than in either of the preceding cases. The sponge resembles the Society in that it is a living entity, in that it is an aggregate of living units, in that the units mostly retain their individual properties and are not specialized into tissue elements and that some, at least, obtain their own subsistence.

If they are capable of existence apart from the aggregate or community, this will be a further resemblance.

On the other hand, a sponge differs from a society in that it has a definite shape, a definite internal arrangement of parts, has a definite surface with an enclosing or investing structure and has an internal supporting structure produced by, and forming an integral portion of the organism. Lastly, it has sex and produces an embryo or reproductive form different from the mature or adult form.

It will thus be seen that between the Sponge and the Social Organism, the real resemblances are few and general while the differences are many and great. It will also be noted that, in so far as the Sponge differs from the Social Organism, it does so in having a more definite structure and in exhibiting a greater degree of specialization among its units.

It is unnecessary to pursue further the analogies of the Social Organism with particular organic forms. What we have established is that it is a compound organism and that, whereas compared with the higher individual compound organisms it has few real resemblances and many differences, compared with the lower compound organisms it has somewhat more resemblances and somewhat fewer differences; and it is fairly obvious that, if we were able to compare it with yet lower composite forms, the number of points of agreement would be still greater and the number of differences still less. We may therefore properly conclude

this stage of the argument with a brief statement of its characters, considered from a strictly biological standpoint.

The Social Organism is a living entity consisting of an aggregate of living units. The constituent units are all completely similar in structure and properties, exhibiting no differentiation or specialization whatever. The mode of aggregation is discrete. The organism has no determinate form, no defined boundaries or surface and no investing or enclosing structure. It has no internal structure and no separate parts. The units being undifferentiated and their mode of aggregation discrete, there are no tissues (structures in which the mode of aggregation is necessarily concrete); and there being no tissues there are no true organs. There is no sex nor any reproductive form (embryo or larva). Reproduction, when it occurs, is effected by the separation of an indeterminate number of units and their migration to a new locality; and its occurrence is devoid of any periodicity or regularity.

It will thus be seen that the Social Organism is structurally amongst the lowest of compound organisms and is probably lower in type than any existing individual composite organic form.

The above conclusion brings into view the essential difference between the Social Organism and all the higher compound organisms; a difference which is so great as to amount to antithesis. For, whereas the latter are organisms of a high and complex type produced by the aggregation of units of a low and simple type, the Social Organism is an organism of a low and simple type composed of units of the very highest and most complex character. The unit of the Social Organism—Man—is, in fact, incomparably the highest and the most complex of all organic forms. Nor should this antithesis have been unexpected; for a moment's reflection shows it to be the inevitable consequence of the respective natures of the respective units.

A typical free protozoon, like the amœba, is ideal raw material. It is a simple mass of undifferentiated protoplasm, having all the functions of an animal, but having them all in the most rudimentary, undeveloped form. It needs but to develop one of these functions more completely and suppress the remainder, and a tissue element results, capable of forming a portion of an appropriate organ.

The human unit is at the opposite pole. A microcosm in himself, Nature's final achievement, every organ and

function perfected by countless ages of specialization and adjustment, he is totally unfitted to be "worked up" into a new structure. For it hardly needs to be pointed out that specialization accomplished is a bar to specialization contemplated in new directions; that finished articles make poor material. A scribe who would use again an old parchment must first erase the existing writing; a painter who would use as raw material an already-existing picture, must first obliterate the old work with a coat of white; while a builder who was provided with a collection of statues as the material for a wall would have to reduce them to fragments before he could begin to build. The very qualities which are excellencies in the complete individual or finished product are hindrances to their employment as units of an organized aggregate or material of some new product.

But it is not only in their degree of fitness for specialization into the units of a compound organism that the high and the low type individuals thus contrast; the antithesis is equally striking in respect of the opposite set of qualities; those, namely, which fit them for individual existence. The protozoon with its undeveloped correlative functions, its limited range of movement, its almost negligible powers of perception, and its infinitely rudimentary consciousness —if it has a consciousness at all—is manifestly but poorly equipped for existence as an individual in a universe of the properties of which it must ever remain practically unconscious and with which it has virtually no correlations. Man, on the other hand, combines with his manifest unfitness for agglutination into a composite structure the most marvellous adaptation to individual life. His immense range of exact and delicate movements, his amazingly developed perceptive faculties, capable of almost infinite development by training,* and his intelligence, of almost infinite potential range, are properties that fit him, as no other is fitted, for existence as a free individual.

Moreover, the utilization of an organism, already highly specialized in one direction, as the material for a composite structure, is entirely opposed to natural economy. There are those who would paint out a masterpiece to produce a blank canvas, who would melt down old church plate to

* An official of the note department of the Bank of England informs me that, by an expert, a difference of thickness in two sheets of paper amounting to only $\frac{1}{5000}$ of an inch can be infallibly detected by touch.

make half crowns, or pull down St. Mark's for building material. But that is not Nature's way. By the transformation of a multitude of protozoa into a metazoon, there is produced a new organism of far greater efficiency than the original protozoon. The unavoidable degradation which the latter undergo in the transformation is far more than compensated for by the superiority of the final product. In the case of man, no such compensation could be looked for; indeed, his obvious unfitness for the concrete form of aggregation by which alone an efficient compound organism could be produced, puts the matter beyond the range of discussion. Nevertheless, since, although this high degree of integration is out of the question, a lower degree is not only thinkable, but actually represents the aspirations of a certain school of sociologists, it is necessary to make a short digression for the purpose of examining the statement made above, that integration of free organisms into the units of a compound organism involves the degradation of the units so transformed. That such degradation is inevitable and does actually occur is fairly obvious; but, in view of the significance of the fact and its important bearing on sociological theory and practice, it will be well to put forward the evidence.

If we consider a free protozoon, even so simple a form as the amœba, we find that it is a complete individual, living its own life and exercising such faculties as it possesses for its own ends. It exhibits all the functions exercised by the higher animals, though with different degrees of efficiency. Thus it ingests food, digests and assimilates it; it respires, it secretes and excretes, it moves from place to place, initiating its own movements; it has some tactile perception, and some perception of light; and since it accepts edible particles and rejects inedible ones and since it moves in determinate directions to avoid obstacles, it may be said to exercise choice; and this, and the power of tactile and other perception, imply the existence of what we must call a rudimentary form of consciousness. Furthermore, it begets progeny, and appears to exercise some rudimentary form of sex function.

With its transformation into a tissue element most of these functions become extinct. If it has become a muscle cell, its power of movement is retained; but it has no power of locomotion and its movements are not purposive but are limited to an unvarying change of shape. Moreover, its

movements are no longer self-initiated; they are set going by an external agency, the motor nerve. Its other functions are almost or quite obsolete. Nutrition is limited to the mere absorption of fluid, reproduction to mere mechanical division; while as to perception and consciousness, since the unit is immovably fixed in a mass of tissue, they are obviously extinct. And the same is true of the other tissue elements, with the exception of the white blood and lymph corpuscles; which retain to a large extent their primitive protozoan characters, and are correspondingly deficient in the characters of true tissue elements.

The transformation of free individuals into units of a composite individual is thus seen to involve the degradation of the individual so transformed. The increase of one function in the interests of the aggregate is achieved by the suppression, partial or complete, of the rest of the functions. And it is important to note that the functions which tend to become lost are precisely those whose increase would raise the type of the individual and whose suppression consequently lowers it. The functions of nutrition and reproduction, which are as efficient in an amœba as in a man, survive in a tissue element, though in a simplified form, but the functions of correlation, by which the amœba maintains an extensive, if vague, contact with the surrounding world, become in the tissue element practically non-existent.

That this degradation and loss of function is the invariable and necessary accompaniment of the conversion of a free individual into a unit of a compound form, becomes evident when we examine representative cases. In the compound Hydrozoa, for instance, we note that the units (Polypites), having no powers of separate locomotion, are more restricted in their correlative functions than are free polyps like the Hydra. The social ascidian is manifestly inferior to its own free larva, and in the Polyzoa, the degradation of the unit is proportionate to the degrees of organization of the aggregate. The social insects furnish a highly instructive instance. In the bees, the rank and file of the community have lost the sexual functions with their associated correlations; in the more highly organized ants, the workers are sexless and wingless; in the yet more highly organized termites the workers are sexless, wingless and sightless, while the mature female or queen, having virtually lost all functions but those of sex, remains for ever immured in the darkness of her cell, a mere, unwieldy bag of reproductive organs.

Brew Museum Science Library

Even in the case of man, though he never undergoes structural change, the degradation of function may be observed where organization becomes marked. In public officials the "grooviness" and slavery to routine, the helpless incapacity to initiate variations from immemorial procedure—what is implied in the term "red-tape"—represents simply a loss of correlative function. But the condition is best seen in cases where the organization is real. Compare, for instance, a "free" cabinet-maker with a "hand" in a furniture factory. The former is an individual of highly complex functions. He has—and uses—some knowledge of design; is well versed in all kinds of joints and constructive methods; has an extensive acquaintance with woods; is skilled in the use of a great variety of tools; is acquainted with a number of different processes, including polishing, veneering, inlaying, marquetry and very often carving; and has an extensive knowledge of furniture in its artistic and useful as well as in its structural aspects.

The factory hand, on the contrary, is functionally "obsolescent." He may spend an entire working life in making chair legs—from a pattern—or sawing chair splats with the aid of a template and a power-driven jig-saw, or, as in a case that I observed, removing, with a slip of glass-paper the saw marks left on the splats by the other artist. Such a man has little knowledge of woods, less of construction and none of design. He can use only the most elementary tools, has usually no acquaintance with decorative processes, and his knowledge of furniture is not much greater than that of a journeyman tailor. By absorption into an organized aggregate he has become functionally atrophied, has undergone degradation.

Before summing-up the results of the enquiry pursued in the present chapter, it is necessary to examine briefly the conception of the Social Organism so elaborately expounded by Spencer; which, it will be seen, is totally different from that which we have evolved as the result of our argument. For, whereas we have found a society to be an organism of the lowest type, devoid alike of parts and structure, Spencer's exposition exhibits it as an organism of high and complex structure having elaborate systems of organs—organs of direction, of sustentation, of distribution, etc.; and it may, not unreasonably, be asked, Why this great divergence between two conclusions drawn from the same set of data?

The explanation is not, I think, far to seek if we consider Spencer's argument in detail. At the beginning of the present chapter it was pointed out that there are two modes of comparison: (A) that of things fundamentally unlike but having certain resemblances, and (B) that of things fundamentally like but having certain differences; and it was urged (obviously enough) that it is necessary to adhere rigidly to one mode of comparison and to avoid oscillating from one to the other.

But this Spencer has failed to do. His argument opens, in very much the same manner as the present one, with a demonstration that a society is truly an organism, fundamentally like and fully comparable with other organisms in its most general characters and properties; and here, the mode of comparison adopted is (B), that of things fundamentally like. But when, from proving this extremely general but real likeness, he proceeds to the establishment of likeness in details, he slips at once into the other (A) mode of comparison: that of fundamentally unlike things which have certain resemblances. While tracing, with wonderful ingenuity, the really striking resemblances between social organization and physiological organization, he allows his attention to be diverted from their fundamental unlikeness. In illustrating the mutual dependence of parts, for instance, he compares cases in which the resemblances are obviously only partial and superficial. He observes that just as in a mammal the stoppage of the action of the lungs brings the heart to a stand and thereby produces death of the entire organism, so a strike among the miners throws the iron workers out of employment. But here, although there is an evident analogy, the phenomena are not of the same order. When the heart—or any other capital organ—ceases to discharge its function, the organism dies. But a strike among the miners does not—fortunately—cause the death of the population of Great Britain, which it should do to make the parallel real.

The alleged dependence of a part upon the whole is equally untrue. In an individual organism, the separation of an organ involves the death of the latter. If the kidney or the liver be removed from the body, it dies inevitably as a whole and in all its component parts. It is incapable of separate existence. But if the Worshipful Company of Carpenters could be taken up bodily and set down on a fertile, uninhabited island, its units would be unaffected—excepting

that they would probably improve in health. What would happen would be a readjustment of function, some units becoming hunters, others fishermen, skinners, builders, farmers, etc. They would, in fact, form a new organism, just as a portion cut from a sponge becomes a new sponge.

So, too, in the case of the organs and systems of organs in a society which are compared with those of an individual organism. There is no question as to the analogies. They are most striking and remarkable. But they are analogies between things which are fundamentally unlike, as will be made clear by the examination of one of them in some detail.

We will take the Distributing System. This is analogous to the Circulatory System in the higher organisms, and, like it, consists of elongated structures or channels, connecting different parts of the whole, and diverging from or converging towards important centres. In the Social Organism the distributing system is composed of roads, canals and railways, with their associated traffic—pack-horses, wagons, barges and the various rolling-stock of the railways which move up and down the channels, transporting commodities from one part—the producing area—to other parts, where they are discharged for consumption. And just as in the individual organism the peripheral blood and lymph vessels take up material introduced from without into the digestive organs and convey it thence to the elaborating organs, and thence again, when elaborated, to the circulatory centre—the heart—for distribution to areas of consumption such as nervous centres and muscles while carrying the surplus and waste to the glands for removal from the body; so in the Social Organism the roads, canals and railways, having depots at seaports or in agricultural centres, gather up there the material imported or produced and convey it to the elaborating organs (industrial centres), whence, in its elaborated, or manufactured, state, they convey it to distributing centres and thence finally to areas of consumption, or in the case of surplus material, to centres of export for removal from the country.

It will thus be seen that the parallel between the " organs " of a society and those of an individual organism is very close and very striking; so much so as to be highly interesting and significant. But it will also be seen that, despite their many resemblances, the two classes of things are fundamentally unlike. Let us note the main differences.

In the earlier part of this chapter the nature of an organ

was defined. It was seen to be a mass of tissue built up of " elements " or units all of which are structurally modified in relation to a particular function, which is that of the particular organ. Every part of it is living matter and it is an integral part of the organism: which is, in fact, virtually an assemblage of organs, united by connecting and supporting tissue.

Bearing this definition in mind, we see at once that none of the social institutions enumerated by Spencer is comparable with an organ on a plane of fundamental similarity. They have striking analogies but they belong to fundamentally different categories. For example, a manufacturing centre consists of the workers and the appliances—mills, foundries, " works," mines, etc., of which latter none is a part of the organism at all, though all are integral parts of the " organ "; while the living units are quite unmodified in structure and but little modified in function. So with the distributing organs. Roads, canals and railways are not parts of the organism but are parts of the environment on which the organism has reacted; and the streams of traffic—pack-animals, wagons, barges and goods-trains—although analogous in function to the blood-stream, are utterly unlike it in essential nature. An American writer has said of his country's railroads that every sleeper is an Irishman; but to make the above analogy complete it would be necessary that not only the sleepers, but the rails, bridges, trucks and engines should be fashioned out of highly modified human beings.

Another aspect in which social institutions differ radically from true organs is in their recent origin and extreme lack of stability. The organs of the animal—and also of the vegetable—body are characterized by an immense antiquity, as compared with the organism itself, or even with its type, and great stability of character. Through immeasurable periods of time the principal organs have remained substantially unchanged while their origin is lost in the utterly remote past. Palæontology teaches us that the main structure of the vertebrate was already settled in the Silurian period. Examination of the oldest fossil skeletons shows us that but few and trivial changes have occurred from the remote geological past to the present day; while Comparative Anatomy not only demonstrates the general similarity of organs amongst all vertebrate forms—in itself an evidence of the enormous antiquity of those structures—but shows

that most of them were inherited in an already advanced state from invertebrate ancestors.

How different is the case with the " social organ !" The great industrial centres are things of yesterday and already show signs of decay. The " directing " or " controlling system " has changed from age to age and is still changing before our eyes. For the Parliament of to-day, with its teams of professional players and its attendant crowd of paid supers, is as unlike the Parliament of 1640 as it probably is to the Parliament of a century hence; while, as to the " organs of distribution," if some of the roads and canals have a certain trifling antiquity and stability, the railway is an ephemeral thing of which the present writer's parents saw the beginning and his children may quite probably see the end.

It thus appears that the comparison of a society with an individual organism of a high type, as things fundamentally alike, cannot be maintained. This, one gathers, eventually became evident to Spencer himself, who at the end of the section executes a sort of strategic retirement—not, perhaps, entirely " according to plan ": for, in the concluding paragraph of chapter xii., he seems disposed to wash his hands of the Social Organism, though he does not explicitly repudiate any of his conclusions; as a consequence of which, the conception set forth in the preceding chapters remains current to this day among certain thinkers of a collectivist type.*

These complex social organizations, then, which bear such striking analogies to the organs and systems of organs of a compound individual body, do not in reality bear that relation to the aggregate. They are not organs in any but a metaphorical sense, but represent the activities of units, or individuals, acting either separately or in voluntary and conscious association. And this is in entire conformity with the respective natures of the Individual Organism and the Social Organism. For, whereas in the former, the highly developed and organized aggregate with its multitudinous specialized parts, is capable of, and does actually effect, complex purposive acts, maintaining a continuous consciousness, exercising reason and will and experiencing memory and emotion; in which activities its simple and degraded

* " But now let us drop this alleged parallelism between individual organizations and social organizations. I have used the analogies elaborated but as a scaffolding to help in building up a coherent body of sociological inductions. Let us take away the scaffolding: the inductions will stand by themselves."—" Principles of Sociology," ch. xii., pp. 613, 614.

units separately play such infinitely subordinate parts as to be hardly recognizably connected with the activities of the aggregate: in the Social Organism all such complex activities must necessarily be performed by, and all states of consciousness appertain to, the complex and highly organized units.

Let us now gather up the results of the enquiry pursued in the present chapter.

We have found that a society is truly an organism; but inasmuch as it is an aggregate of entirely like units which exhibit no trace of differentiation or specialization; has no parts or structure, no form, boundaries or surface; no sex, and no reproductive functions other than the power of detaching, at indeterminate intervals, indeterminate fractions of its mass: it is an organism of the lowest structural type, differing from an unorganized aggregate such as a zoogloea mass or a colony of torulæ in little but the individuality conferred by the special type of its units; which differ in type from the units of all other aggregates and so distinguish it as a definite entity.

We have found that the Social Organism differs from all other compound organisms in that, whereas the latter are complex aggregates of simple units, the former is a simple aggregate of complex units; and we have found that the relation between the complexity of the unit and that of the aggregate is a true correlation, so that alteration in one factor involves necessarily a corresponding but inverse change in the other; that increase in function and organization in the aggregate involves a corresponding decrease of function and organization in the units, and *vice versa*. And we further found that the loss or gain of function is evident principally in respect of the higher functions—those of correlation—leaving the lower functions—nutrition and reproduction—practically unaffected.

These are our conclusions; and it may be that they seem to bring but a tame and flat ending to our enquiry. Nevertheless, unsensational as they are, they yield at least one corollary of primary importance; which is that the progress of a society, and indeed, of the entire human race, is to be achieved by the further elevation in type of the individual and not by the organization of the aggregate at the cost of the degradation of the units.

CHAPTER IV

HAS A SOCIETY A LIFE-CYCLE?

Of all the phenomena of life, the most constant and characteristic is that of periodicity. Not only in such minor changes as the bursting of the bud, the fall of the leaf, the vernal blossom and the autumnal fruit, the mating of birds and the change of fur or plumage; which are but responses to seasonal changes in the environment: but in the larger changes which are, as it were, the paragraphs of racial history, there is seen an unvarying recurrence of a similar set of phenomena, in a determinate order and at more or less determinate intervals. Birth, childhood, maturity, old age and death are the events the continual recurrence of which forms the burden and refrain of human history, and, in essentials, that of all the living forms with which we are familiar, from the oak tree in the hedgerow to the butterfly that flits across the meadow.

The observation of the apparently universal occurrence of this series of changes, and especially of the final change, death, has generated a belief that societies, like individuals, have their life-cycles; that they, too, have their infancy, their maturity and their old age, terminating in inevitable death; a belief that finds expression in such phrases as "the childhood of the race," "national senile decay," etc. Macaulay's New Zealander is an illustration of the assumption that national life leads ultimately to national death.

But examination of the phenomena on which this analogy is based shows that the above cycle of changes is not of universal occurrence. Periodicity is indeed universal among living beings, but the progressive series of changes forming the life-cycle, as usually conceived, occurs only in the higher organisms. The lower organisms know neither infancy nor death. Periodically they undergo certain changes by which the personality, so to speak, of the individual is altered; but those changes include neither birth, death, infancy nor old age. Nor, even in the higher organisms, does death occur with the completeness that popular speech implies; for, obviously, if every individual died outright, the race would come to an end. It is only a part of the individual that is affected by death. A part remains unaffected; and it is this surviving moiety that secures the continuance of the race.

Let us look at these phenomena a little more closely, confining our survey to the Animal Kingdom (which, however, differs in no essential from the Vegetable Kingdom). This consists, as we have seen, of the two groups, the Simple animals (Protozoa) and the Compound animals (Metazoa).

The life-cycle of a protozoon is as simple as its structure. For a certain period it exists in what we may call a state of maturity. Then there appear signs of waning vitality, as evidenced by diminished activity. At this stage it attaches itself to another individual of the same species and the two become fused into a simple large individual (conjugation). This new individual exhibits immensely increased vitality (rejuvenation), by virtue of which it divides into two, or in some cases, into a considerable number of parts, each of which becomes a new, mature individual; which lives for its allotted period and in due course undergoes conjugation with another individual, followed by rejuvenation and division, and so on indefinitely. Thus, it will be seen, the protozoon does not die; only periodically it mingles its protoplasm with that of another individual and then separates with a new lease of life.*

When we look at the life-history of one of the higher organisms, we seem to see a totally different series of phenomena. In man, for instance, the series of changes beginning with the embryo, passes through the stages of child, youth, mature man and old man, to end with death and the resolution of the body into its chemical constituents. At the first glance it appears as if the life-cycle of the Metazoa differed entirely from that of the Protozoa.

But the appearance is illusory. In essentials the phenomena in the higher organisms are the same as those in the lower; the apparent difference being due to the existence in the former of an adventitious structure having only temporary functions and undergoing dissolution when those functions are completed. Looked at from a purely biological standpoint, one of the higher organisms—a human being, for instance—is seen to consist of two parts; (*a*) a group of protozoon individuals—the sex elements (ova or spermatozoa) and (*b*) an envelope or investing structure thrown up around them for their protection and nourishment—the body; which, by reason of its disproportionate size and the complexity of its by-functions, we are apt to

* The word protoplasm is here to be understood as including the nuclear elements.

mistake for the entire individual. Periodically, one (or more) of the contained protozoa escapes from the enveloping structure, and, meeting with another protozoon of the same species but complementary form—ovum or spermatozoon —which has escaped from another "envelope" unites with it (*i.e.*, undergoes conjugation). The new protozoan individual (fertilized ovum) produced by the fusion of the two liberated protozoa is rejuvenated to such an immense extent that it is not only able to divide up into parts for its own reproduction but by continued division to furnish the tissue elements for the building up of a new investing structure around itself.

Meanwhile, from the original investing structure the remaining protozoa escape at intervals, the rate of their emergence being greater than that of their reproduction within the envelope (which, by the way, takes place without conjugation and therefore with a progressive diminution of vitality). At length there comes a time when they have all escaped. The investing structure, or "envelope," is now empty; and an empty envelope being functionless, it undergoes degenerative changes and eventually dies, just as a poppy capsule withers and dies when the contained seeds have escaped.

It thus appears that death, so far from being universal, is a purely local phenomenon, concerned exclusively with the periodic casting-off of a deciduous protecting structure thrown up around a group of protozoa, and that the degenerative changes which herald its approach commence coincidently with the complete rejuvenation of the contained protozoa. That is to say that, as the investing structure comes into existence with the production (by conjugation) of a rejuvenated individual (the fertilized ovum), so its function ceases on the completion of the life-cycle of that rejuvenated individual by the conjugation and rejuvenation of its offspring or "daughter-cells."

And now what is the application of these conclusions to the problem before us? How do these biological data bear upon the question of the Social Life-cycle? The answer is that since death has been shown to be a correlative of sex, and since it affects only the moiety of the individual which is metazoan and which forms the investing structure around the protozoan moiety, or sex elements; a society cannot be assumed to be subject to death inasmuch as it has neither sex nor anything corresponding to an investing structure.

In the preceding chapter we have seen that the Social Organism, although compound, is simpler in structure than any other known compound organism. Its analogies are with such an organism as would be formed by a permanent aggregate of undifferentiated protozoa. In such an organism the units would not die, but by periodic mutual interchange of protoplasm prolong their lives indefinitely. And since the units would continue to exist indefinitely, the life of the aggregate would also be of indefinite duration.

But, it may be objected, a society is not composed of protozoa; it is composed of men.

This is at once true and untrue. A society is, indeed, composed of men. But each man consists, in part, of a protozoan moiety which survives indefinitely after the death of the metazoan moiety. That is to say he consists of a permanent part—the protozoan sex elements—and a temporary part—the remainder of his body. But it is the former which secures the continued existence of the society. The temporary body perishes and is forgotten: the permanent part continues from generation to generation. The relations of the parts are analogous to those of a necklace of beads. The beads are the conspicuous part and give their name to the whole. But running through them is the inconspicuous string; which is nevertheless the essential part, to which the beads are but mere inessential additions. Remove the beads and the necklace remains, though shorn of its glories: remove the string, and there is no necklace.

Thus it is with a society, which consists essentially of the protozoan elements. Their longevity is its longevity. The living generation are, as to their metazoan bodies, mere fugitive structures which play their momentary part and are gone; but their protozoan elements are protoplasmically continuous, not merely with those of the men of 100,000 years ago, but with those of man's ancestors back to the remotest antiquity, by continual conjugation and rejuvenation. The protozoan elements have never died; their life has been continuous and uninterrupted from the very dawn of life on the earth to the present moment; and it will continue without interruption so long as life continues on this planet.

The longevity of the protozoan elements is therefore (biologically) the longevity of a society; and since their longevity is indefinite, there would seem to be, biologically speaking, no reason why a society should not continue to

exist for an indefinite time. Apparently the common belief in the limited life of societies has no basis in biological fact.

Nevertheless, it is undeniable that hitherto societies appear to have had but a transitory existence. The great nations of antiquity have, one and all, vanished, some, like the Hittites, so completely that they are little more to us than a name, and it is a reasonable inference that yet others have passed into oblivion leaving no trace of their passage across the stage of human activity; while, of the societies forming the modern world, none, with the exception of the Chinese, dates back to a really remote antiquity. The teaching of history thus appears to conflict with that of biology. Conclusions reached by deduction seem not to agree with those drawn from experience.

A certain obscurity has been introduced into this subject by the methods of the old-fashioned historian of the purely literary type, who dealt exclusively in data of a documentary or philological character, and who was very apt to confuse political with racial phenomena: who conceived a migration or an invasion as involving a total change of population, and conveyed the impression that, on the arrival of the invader, the aboriginal peoples vanished into thin air.

It is, of course, unnecessary to point out that this is not in the least like the actual occurrences. Populations survive thousands of years after the disappearance of nations, and sometimes reintegrate, with foreign accessions, the importance of which the historian is apt to exaggerate. The resemblance of the modern fellaheen to the monumental figures of old Egypt has been noted by travellers with uncalled-for surprise; in Mesopotamia are to be seen men who might have stood as models for the Assyrian statues and reliefs; and in our own country we may see that the average Englishman of to-day is nearer in physical characters to the Bronze Age and Neolithic peoples of this island (British and pre-British) than to the "English" of a certain school of historians. Hence it is necessary to bear in mind that political extinction is by no means the same thing as racial extinction, and that consequently the discrepancy between biology and history is less than at first sight it appears.

Nevertheless, the two classes of phenomena, although not identical, are related. The rise, predominance and decline of nations must be associated with varying conditions of racial vitality. A race that is physically and mentally

vigorous tends to become a developed and predominant nation. National decline implies racial deterioration, unless otherwise clearly explained. A nation, like Babylonia, for instance, which disappears politically and leaves a sparse population at a relatively low culture level, implies a race which has undergone physical and mental deterioration. So the failure of Egypt to recover a national existence, and the failure of Greece to re-establish its intellectual supremacy, suggests an unfavourable change in the personnel of those races.

Thus it appears that the main factor of national decline is racial deterioration, and that the factors of racial deterioration are the ultimate factors of national decline. Whence it follows that a study of the conditions favourable or unfavourable to the well-being of races will discover the conditions favourable or otherwise to the development of nations; and, conversely, that a study of the factors of national decline will bring into view some, at least, of the factors of racial deterioration.

What are the conditions which tend to diminish the vitality of a race, thereby limiting its growth or tending to cause its extinction? Evidently such conditions may operate from within or from without; may take the form of intrinsic or environmental changes.

Of the intrinsic changes which may occur in a race, there are apparently only two: unfavourable variation, and failure of natural selection by the survival of the unfit.

As to the former, it is to be noted that unfavourable variations are normally eliminated by the counteraction of natural selection and thus prevented from extending from the individual to the race; while, as to an unfavourable variation of an entire race or society, it may well be doubted whether such a thing has ever occurred.

With reference to the latter, there is no doubt that in modern societies its operation is very extensive and pernicious. The improvements in the medical art have made possible the preservation of individuals whose survival is not desirable in the interests of the race; and the growth of institutions, both public and private, whose aim is to preserve the physically and mentally feeble, has resulted, not only in such preservation, but in creating facilities and encouragement for unfit persons to engender offspring by whom their unfitness may be transmitted to succeeding generations. The evil, and its menace to posterity have

been widely recognized by the more sober class of sociological thinkers, and it will be considered in more detail in a later chapter. Here it is necessary only to note it as a factor in diminishing the longevity of a society, and to note also that, since it is always artificially produced, it cannot be advanced as discrediting the conclusions of biology.

We now come to the conditions which operate on a society from without—unfavourable changes in the environment. These may be due to (*a*) cosmic changes, (*b*) the influence of other societies, (*c*) reactions on the environment by the society itself, or (*d*) the incorporation in the society of inferior foreign individuals.

The last, as being a more local condition, we may conveniently consider first.

It has been stated, with too little reservation, by responsible writers that a mixed race is usually superior to a pure race; and the superiority has been ascribed to the greater variability of mixed races as compared with pure strains. But this generalization, especially as applied to modern societies, is pervaded by several serious fallacies. Apart from the consideration that large societies have probably reached the limit of useful variability, we have to note that variability is beneficial only on condition (1) that unfavourable variations are eliminated, as they are in nature and as they are not in modern societies, or (2) that the favourable variations shall preponderate over the unfavourable; which will not be the case where the foreign individuals are inferior to the native.

No sane person who had inspected—as the present writer has often done—the shiploads of the sweepings of Eastern Europe that used to pour into the Port of London via Bremen and Rotterdam, could suppose that the quality of the population of this country could be improved by the incorporation in it of this unclean rabble. Common sense and the science of heredity alike lead us to the conclusion that a lowering of the average quality of one generation by the introduction of inferior individuals necessarily involves a like lowering of the quality of succeeding generations; and that a continuance of the process involves a progressive decline in the quality of the society and in its power to maintain its existence under other unfavourable conditions.

(*a*) Cosmic changes may occur too suddenly to allow of adjustment to the new environment, as apparently happened in the case of the mammoth and perhaps in the cases of the

men of the Reindeer period and the steatopygous forest peoples who inhabited the Sahara region before the change of climate. Usually, however, these changes are so gradual that there is ample time for adjustment, and the phenomena have no sociological interest.

(*b*) The partial or complete extinction of societies by other societies forms a large part of the subject-matter of history, and the phenomena are therefore well known. But, as already remarked, there is a tendency on the part of the historian to confuse the political consequences of the hostile contact of races with the biological, to speak as though political extinction were equivalent to actual extinction. As a matter of fact, the total disappearance of a race has seldom been recorded, and when, as in the case of the vanished Tasmanians and the vanishing Maoris, an authentic instance is presented, the cause of the extinction is by no means obvious. It is certainly not the direct result of conquest, though it does appear to be associated with the arrival of a new race at a different culture level. The fading away of one race in the presence of another seems analogous to the replacements which occur among the lower animals, as, for instance, that of the black rat by the brown rat, which appears to be taking place all over the world.

It is probable that in a considerable proportion of cases, especially among the ancient peoples, the disappearance of the aboriginal population, whether partial or complete, after invasion and conquest, is to be traced, not so much to the conquest itself as to some antecedent racial deterioration which made the conquest possible. Thus the sudden disappearance of the Assyrians is traceable to internal changes which had been operating for centuries, but of which the consequences were fully developed only when the country was subjected to the strain of an invasion.

It is worth noting that the historian of the old school tends to be somewhat misleading in regard to the consequences of conquest. He has a distinct bias in favour of the conquering races, in whom he discovers qualities the existence of which is not at all evident, and tends to find beneficial results from conquests which are not very apparent to the impartial observer. He seems, in fact, to feel called upon to explain and justify the acts of Providence by demonstrating that the conqueror deserved to succeed and that it was all for the best.

The actual fact seems to be rather the reverse. When

two numerically equal races come into conflict, the chances of success favour the inferior, for the reason that the superior peoples have usually advanced to the cultivation of the arts of peace, while the inferior race is still at the predatory, militant stage. And for the same reason, the conquest by the militant race is usually a misfortune to humanity at large, as setting back the culture level to that of an earlier period. The more cultivated Babylonians were conquered by the less cultivated Assyrians, with the resulting lowering of the local civilization; and the supremely gifted Greek was vanquished by the less gifted but more militant Roman, who in his turn was politically annihilated by the still less gifted Barbarians, with a consequent fall in culture from which the world has, in some respects, never recovered. Nor is this less true of modern nations. At the beginning of the late war, the chances of success were immensely in favour of the most backward of the great European nations—the only one which had not emerged from the predatory, militant stage, and it is very evident that if that nation had been victorious, the enormous destruction of the unreplaceable products of culture and civilization which has already occurred would have been followed by a like destruction of the essential institutions of civilization itself.

This, however, is but an *obiter dictum*, not strictly relevant to our subject. We are at present concerned merely with the causes, acting from without, which may abbreviate or extinguish the life of a society, among which, as we have seen, the hostile action of rival societies is one of the most conspicuous.

It will be observed that the factors of deterioration or extinction which we have been considering are all contingent; that although in the past one or more of them has so operated as to produce political or total extinction of societies, none of them is a necessary accompaniment of a society's existence. Our examination has not brought into view any constant condition limiting the life of a society, or even any sign of periodicity apart from that of the units.

We now come to the last of the possible factors of racial deterioration or extinction: the reactions of a society upon its own environment; and in order the more conveniently to study these, it will be best, in the first place, to reduce the problem to its simplest form and consider the reactions of a simple aggregation of simple organisms upon an environment of corresponding simplicity.

Let us begin with a slight modification of a familiar biological experiment.

Having provided ourselves with two ordinary glass chemical flasks—which we will call A and B—we introduce into each a litre of the saccharine liquid known as Pasteur's Fluid (a solution of sugar and certain organic and mineral salts). We sterilize both by boiling, and seal the opening of each flask with a sterilized plug of cotton wool. The contents being thus protected from the access of germs, will remain unchanged indefinitely. We next obtain a small quantity of fresh brewer's yeast, a drop of which we examine under the microscope, when we find it to consist of a clear, colourless fluid in which are floating swarms of minute oval bodies resembling little bladders, of an average diameter of $\frac{1}{3000}$ of an inch. These—the yeast plants, or Torulæ, the essential agents of fermentation—we shall find in a state of active growth and multiplication, the larger specimens having smaller ones growing from them (buds), which we may presently see separate and become fresh individuals, while the latter even before the separation from the parent cell, are seen in their turn to throw out buds. A similar examination of drops of the fluid, taken with proper precautions from the two flasks, will show that fluid to be perfectly clear and to contain no solid particles whatever.

Now, with a glass pipette or a platinum needle, we take up a drop of the yeast, and, quickly removing the cotton wool plug from the flask A, introduce the drop of yeast into the contained fluid and at once replace the plug. Then we place the two flasks in a warm room and await developments.

After a variable interval, determined mainly by the temperature, a difference will begin to be observable between the contents of the two flasks. The liquid in flask B will remain perfectly clear while that in A, losing its complete transparency, begins to appear slightly turbid. Simultaneously there appears on the surface of the liquid a pellicle or scum under which little bubbles, floating up from the bottom of the flask, become imprisoned. As time goes on the change continues. The liquid in flask A becomes more and more turbid, the scum becomes more pronounced, and the bubbles, now rising in large numbers, accumulate under the scum, which they raise, forming a definite froth. If at this stage a drop of the liquid be carefully removed and examined under the microscope, it will be seen to consist of a clear fluid in which swarms of Torulæ are floating, while

the scum is an almost solid mass of these organisms, all in a state of rapid multiplication, as shown by the long strings of buds that are attached to the larger individuals. This rapid multiplication continues for some time; the liquid becomes more opaque, the generation of gas amounts almost to effervescence and the froth accumulates at the surface.

But presently there comes a change. The liquid begins to be less turbid, the generation of gas gradually ceases and a sediment (of dead Torulæ) begins to settle at the bottom of the flask. Examination of the liquid shows that the Torulæ are not only no longer increasing in number, but are rapidly decreasing, and the long strings of buds are no more to be found.

What is the cause of this change from enormously rapid increase to rapid decrease? The natural explanation seems to be that the few hundred or thousand Torulæ at first introduced have, in multiplying to the countless millions that swarmed in the liquid at the period of greatest fecundity, consumed all the sugar and other nutrient material which the liquid contained; that it is a simple case of the law of Malthus—of multiplication up to the limits of the means of subsistence.

Is this the explanation? If it is, the introduction of a fresh supply of nutrient material should result in a fresh outburst of reproductive activity. We accordingly make a concentrated solution of the constituents of Pasteur's Fluid, and, having sterilized it, introduce it, with the necessary precautions, into the flask. But no considerable increase of reproductive activity follows. Some slight revival may occur, but it is quite transitory, and, in spite of the fresh nutriment, the decrease of the Torula population continues.

Perhaps, then, the change is due to the Torulæ themselves, which may be conceived as having undergone degeneration, as the unduly prosperous are said to do. This also can easily be put to the test. If a drop of the fluid from flask A be introduced into flask B, the original conditions are reproduced. But when this is done, it is found that flask B simply repeats the phenomena of flask A; that a similar series of changes occurs in the fluid and that a similar rapid multiplication of the contained Torulæ takes place. Evidently there is nothing amiss with the Torulæ. There remains only the liquid in which they are immersed; and examination of this supplies the explanation. For analysis

of the contents of flask A shows that a new substance has appeared in the fluid; namely, alcohol, a substance that is poisonous to the Torula, as indeed it is to all other organisms. And if we enquire as to the source of the alcohol, we find that it has been produced by the decomposition of the sugar by the Torulæ; that, in fact, alcohol is a normal by-product of the vital activities of Torulæ in the presence of sugar; and sugar is a nutrient material that is peculiarly favourable to the growth and multiplication of Torulæ, and may be said to be their normal food.

If now we consider the significance of the facts which our experiment has elicited, we shall find it—for our present purpose—in the singular change which the Torulæ have effected in their own environment. That environment, when they were introduced to it, was in the highest degree favourable. After a comparatively short period it had become completely unfavourable; and the change from the one condition to the other was exclusively the result of the reaction upon it of their normal vital processes.

In exhibiting these phenomena the Torula is not peculiar. Similar reactions may be observed in the case of other simple organisms, such as the Bacteria, and may be demonstrated by suitable experiments. Let us, for instance, examine the reactions on its environment of a bacillus, taking the organism of Typhoid Fever (*Bacillus typhosus*) as our subject.

We begin by half filling a glass test-tube with Agar jelly, which we sterilize by heat and protect with a cotton wool plug. Then, dipping a sterilized platinum needle into a pure culture of the Typhoid bacillus, we stick its point into the surface of the jelly, and, replacing the cotton wool plug, put the tube into an incubator. After the lapse of about twenty-four hours we shall find that at the spot where the needle-point touched the jelly, the latter has become liquified. If a minute drop of this liquid—removed on a needle-point—be examined under the microscope, it will be found to be swarming with the bacilli, all in a state of active movement. The liquified spot is a "colony" of the organisms.

Through the glass tube and the transparent jelly the behaviour of this colony can be observed. It is seen to extend laterally, but especially downwards, burrowing into the jelly, in which it sinks a little well, at first rapidly, then more and more slowly, until, at last, it becomes stationary. The colony has ceased to grow. And now, if we take a drop of liquid from the colony and examine it under the

microscope, we shall indeed find an abundance of bacilli. But they no longer exhibit movements. They are, in fact, dead. The colony has become a necropolis.

What is the cause of the death of this colony of organisms? Obviously not starvation; for the colony is surrounded by a mass of unconsumed jelly. Examination of the liquid in which the dead bacilli float shows the explanation to be the same as in the case of the Torula. A new substance has made its appearance; not alcohol, in this case, but a group of intensely poisonous bodies known as toxins, to the effects of which are due the symptoms of the disease in man. These toxins are the by-products of the normal life-processes of the bacilli and their presence is the invariable, normal result of the reaction of the bacilli on their environment.

Thus, like the Torulæ, the bacilli, on being placed in an environment which is exceptionally favourable, so react on it as to convert it into a completely unfavourable environment; and this they do, not exceptionally or contingently, but invariably, by the exercise of their normal vital activities.

But, it may be objected, groups of organisms growing in artificial media in glass vessels are not representative societies of these organisms. The conditions are purely artificial, and, as such, yield no conclusions that are applicable to natural societies. I do not admit the objection, for the only artificial factor is the exceptionally favourable nature of the environment. But we will, nevertheless, proceed to consider an instance into which no element of artificial control enters; in which the conditions are entirely natural. We will take the phenomena presented by a case of measles.

Let us suppose that a male juvenile—whom, in accordance with immemorial custom, we will call John—is taken to a children's party, where he meets another juvenile—James—who appears to have a cold in his nose, whose eyes are suffused and whose face is flushed. A day or two after the party, it is reported that James is "down" with measles. Thereupon John's friends begin to watch him with some anxiety. At the end of about ten days John begins to be somewhat "off colour," and this condition becomes more pronounced on succeeding days until about the fourteenth, when he has an attack of shivering and becomes definitely ill, with headache, nasal catarrh and a rise of the body temperature. During the next three days his condition grows

worse and his temperature continues to rise. On the fourth day of the actual illness his skin becomes covered with spots which run together, more or less, exhibiting the characteristic rash; and usually about this time his temperature falls somewhat suddenly and he feels much better. From this time onward the symptoms rapidly subside; the temperature falls to normal, the rash disappears, and John becomes, first convalescent and then quite well. And not only is he well; he is now incapable of again becoming ill of the same disease. He cannot be again infected. He has become " immune " to the infection of measles.

If, now, we examine the causation of these phenomena, we shall find that this case is, in essentials, precisely similar to the two foregoing cases. The child, James, has been " invaded " by a micro-organism* which has established colonies in his respiratory cavities; and portions of these colonies he distributes broadcast by coughing, sneezing and talking. Air thus charged with the bacilli is inhaled by John, and the micro-organisms, having settled on the walls of his respiratory passages, proceed to multiply and form colonies. Portions of these colonies migrate and are carried by the blood-stream all over the body, still multiplying rapidly and generating toxins. The interval between the infection and the appearance of symptoms (incubation period) represents the time occupied by the organisms in multiplying up to an aggregate large enough to make its presence felt by the quantity of toxins generated; and the appearance of symptoms (" invasion ") marks the attainment of that degree of density of population.

But why does John recover ? Why does he not become completely consumed by the invading organisms ? If we follow further the history of the invading society we shall see.

The life processes of the bacilli are accompanied, as we have noted, by the production of the poisonous toxins; but since these are eliminated by the " host " (John) nearly as fast as they are produced, they never reach a concentration sufficiently great to injure the bacilli. Later, there is produced a second series of bodies—antitoxins—which are antagonistic in action to the toxins—are, in fact, antidotes to them—and are thus directly favourable to the " host," and indirectly favourable to the bacilli (since John's death

* The actual organism has not, up to the present, been isolated; but this is immaterial.

would involve their death also). The body of John, therefore, still furnishes a favourable environment to the bacilli.

But at a yet later stage of the disease there appears a third group of bodies—the opsonins or anti-bodies. The exact source of these has not, I think, been determined. Nor is it material; for whether they are produced by the bacilli or by the tissues of the host, they appear only in the presence of the bacilli and are admittedly a by-product of the vital activities of the latter. Their action is very curious and rather obscure in detail, though its effects are quite clear, and may be explained as follows:—

When the bacilli enter the body of the host they encounter a number of wandering cells (phagocytes) which are extremely like amœbæ and whose function is to devour any foreign matter that may find its way into the body. The phagocytes proceed to devour the bacilli, but are unable to consume them as fast as they multiply. Hence the bacilli continue to increase, and their increasing number marks the progress of the disease. But with the appearance of the opsonins a change occurs. Either the latter act in some way upon the bacilli, rendering them more easy to consume, or they act on the phagocytes, increasing their vitality—probably the latter. At any rate, the effect is that the phagocytes now consume a much larger number of bacilli; so much so that the rate of consumption is now considerably greater than the rate of multiplication. The result is that the bacilli, being devoured faster than they can multiply, begin to decrease, while the phagocytes increase; the ratio of consumption to multiplication thus rapidly changes, with the final consequence that the bacilli are completely exterminated. And even then there is no return to the *status quo ante ;* for a certain amount of opsonin, or anti-body, remains as a permanent constituent of the host's body, so that, henceforth, bacilli of this type are unable to effect an entrance. The " opsonic index " of the host has been raised and he has thereby acquired immunity.

Thus, in this instance, the succession of events is entirely similar to that in the experimental instances. The organism effects entrance to an environment which is completely favourable. Therein it multiplies with great rapidity and appears to be in a state of the highest prosperity. Then long before it has reached, or even approached, the limits of the means of subsistence, it has, by its own normal

activities, so affected that environment as to render it not merely unfavourable, but actually destructive.

From the above instances it appears that, at least among organisms of this class, the invariable result of dense aggregation is to set up in an originally favourable environment certain conditions (which we may conveniently call "anti-conditions"), the effect of which is to render the environment unfavourable and to bring about the partial or complete extinction of the aggregate or society.

The foregoing conclusion suggests an inevitable question: Are these reactions upon the environment peculiar to aggregates of these low and simple organisms, or are they phenomena which manifest themselves in all dense living aggregates? The question is not easy to answer decisively. The complexity of the conditions of life among the higher organisms makes the investigation difficult; but there are certain obvious phenomena which at least offer suggestions. There is, for instance, the fact that a dense aggregation of a particular species of plant cannot be continuously maintained upon a given area of land, as shown by the necessity for the rotation of crops. Here, it is true, the experiment is disturbed by the removal of the plants, with consequent impoverishment of the soil; but still, it is to be noted that a field which has borne a crop of one species of plant—wheat, for instance—while it will not immediately sustain another crop of the same species, will yet furnish quite a good habitat for plants of other species whose chemical composition differs but slightly.

The life-histories of some of the higher animals seem to offer similar suggestions. Let us take the rabbit, for instance. This animal lives to an age of seven to eight years; it breeds from four to eight times a year; the number of young forming the litter varies from three to eight; and the young rabbits become sexually mature and begin to propagate at the age of six months. Now, if we make a rough calculation based on these figures, we see that the physiological rate of multiplication is extraordinarily rapid. Thus, taking the number of litters per year as six and the number of young per litter as five, a pair of rabbits will produce thirty young in one year. Of these thirty, five will propagate three times in the year (producing $5 \times 3 = 15 \div 2 = 7{\cdot}5$), five will propagate twice (producing $5 \times 2 \div 2 = 5$) and five will propagate once (producing $5 \div 2 = 2{\cdot}5$). The third generation will therefore number fifteen, the second generation

thirty, and, of course, the first two. The entire family at the end of one year will number forty-seven; that is to say, each original rabbit will, at the end of twelve months be represented by—in round numbers—twenty-three individuals. Continuing the increase at this rate, we find that by the end of the fifth year, each original rabbit will be represented by six millions, four-hundred and thirty-six thousand, three hundred and forty-three individuals.

It is unnecessary to say that rabbits do not multiply at this rate in natural surroundings. In this country they do not multiply at all. The rabbit population is approximately stationary. There is thus an enormous discrepancy between the physiological rate of multiplication and the actual rate. What is the explanation of this? The artificial destruction by man accounts for but an insignificant fraction of the discrepancy; the remainder must be set down to environmental conditions. Exactly what those conditions are it would, perhaps, be impossible to determine, or to decide to what extent they are generated by the animals themselves; but that the unfavourable conditions are produced by the rabbits—that they are due to reactions of the latter on their environment, is strongly suggested by the enormously rapid rate of multiplication—apparently approaching the physiological rate—which they exhibited when they were introduced into Australia. For this phenomenon is completely analogous to that which we observed when the stationary or dwindling Torulæ were taken from their old environment in flask A and introduced to the fresh environment of flask B.

The operation of this law (if so we may call it) upon human societies is necesssarily still more difficult to investigate by reason of the greater complexity of their life processes; nor need we expect to find any anti-condition in full operation, since the human race is still at the stage of rapid increase and shows no well-marked signs of declining vitality. Nevertheless, a study of some of the (politically) extinct societies of the past seems to suggest that their disappearance was due to causes generated by themselves. The case of Assyria, to which reference has already been made, seems to offer an instructive example which we may profitably consider.

The train of events which terminated abruptly in the collapse of the Assyrian Kingdom about 600 B.C. began with almost equal abruptness in the reign of Tiglath-Pileser I. By that king was inaugurated the predatory policy which

was pursued by this repulsive people throughout its national existence. Assyria became a purely military state, with a regular and highly efficient army and the settled purpose of getting its living by robbing and murdering its neighbours. The *modus operandi* was somewhat thus: A prosperous and peaceful nation having been selected as the victim, the country was invaded and an easy conquest made by the highly trained and experienced troops. The towns were then burned, the available male population slaughtered, with the most revolting cruelty, children murdered and women outraged. A portion of the army was then detached to remain and form a colony, and the bulk of the surviving population deported to Assyria, there to form a captive settlement.

This policy seems to have been consistently followed by the successors of Tiglath-Pileser I.—the zenith of horror as to methods being reached in the reign of Asshur-Nazir-Pal—with certain gradually-accumulating consequences. By the colonizing process, an appreciable drain was produced on the most effective part of the native population, but slightly compensated for by the creation, at the periphery of the kingdom, of a fringe of largely alienated colonies; while the continuous importation of captive peoples progressively diluted the aboriginal population with indifferent or actually hostile aliens.

The day of reckoning came with the great invasion of the "Manda" (Scythians—or possibly Medes). The scale of this invasion was too vast to allow of its being dealt with even by the highly efficient army. The only chance of salvation was in a general defensive uprising of the nation. But there was no nation to uprise. A large part of the manhood of Assyria was established in distant conquered lands, while the captive peoples who occupied such a considerable area of the actual kingdom had no interest in opposing the invaders. Thus Assyria collapsed in a moment, so to speak, from causes which had been accumulating for centuries and which had been continuously generated by her own activities.

Others of the nations of antiquity seem to offer a similar suggestion. The case of the Roman Empire has many points of resemblance to that of Assyria; the downfall of Greece was largely Greek in causation; and the decay of Egyptian nationality appears to have its origin, not in the Hyksos domination, but rather in the brilliant and apparently successful eighteenth dynasty.

So, too, with modern nations. But it is needless to multiply

instances when we have before our eyes the most typical and convincing of all. But a dozen years ago Germany was one of the most prosperous, wealthy and powerful nations in the world. Her argosies sailed in every sea, her manufactures flooded the world's markets, her citizens were welcomed with warm hospitality in every civilized country, her factories, stores, banks and warehouses were to be seen plying their industries and spinning wealth in every large town throughout the world. And now we see her poverty-stricken and bankrupt, her power shattered, her credit gone, her friends turned to foes, an object of grudging compassion mingled with distrust.

Her case is closely similar to that of Assyria (the parallel is, indeed, extraordinarily close, not only in the criminal predatory outlook, but also in the obscene ferocity of conduct and a savage cruelty almost unbelievable in a modern people); for generations she has been busily, eagerly creating the factors of her own destruction; for years upon years the results of her activities have been accumulating. And, at last, at the appointed time, the accumulated consequences have taken effect. In the space of less than six years, she has changed an eminently favourable environment into one even more eminently unfavourable.

But, as the reader has probably observed, the instances cited from human history, while they illustrate the tendency of organic aggregates to generate unfavourable conditions in their surroundings, are not completely analogous to those of the lower organisms. In the latter, the reactions on the environment occur as the constant and invariable accompaniment of the normal vital processes in all cases of close aggregation. They are the normal results of normal processes.

The phenomena which have been described above in connection with human societies will be seen to have been contingent. The reactions occurred only in particular cases under particular conditions. Moreover they resulted not so much from normal social activities as from special conscious purposive acts which achieved an unintended result (as corporate activities commonly do). Furthermore, in the cases of Assyria and Germany we are not dealing with normal social activities at all. These are cases of collective criminality, manifestly abnormal and apparently associated with some deep-seated defects of racial character.

The question, therefore, whether there is any discoverable

tendency on the part of human societies to produce by their reactions on their environment any "anti-conditions" which may be expected to become operative in the future, remains to be answered; and I propose to defer its further consideration until we have examined certain other data from which conclusions may be drawn: particularly the data connected with the Social Reactions of mechanism and with the morbid states of societies.

Meanwhile, apart from the possible existence of such anti-conditions, our examination has not brought into view any evidence that the existence of a given society is necessarily of finite duration, or that societies present any definite periodic phenomena other than those of the constituent units. In other words, the conclusions reached deductively on purely biological grounds have not been disturbed by the consideration of particular instances.

Section II.—The Social Reactions of Mechanism

CHAPTER V

GENERAL REACTIONS AND REACTIONS ON ITSELF

It has been customary to divide the history of the human race into certain large periods, each characterized by the use of a particular material and the attainment of a certain degree of skill in the fashioning of weapons and implements. To the archæologist such a classification is convenient, for the prevalence at any time of the use of a given material and method of manufacture furnishes a useful standard by which to estimate the degree of knowledge and culture attained. Nevertheless the transition from rude stone implements to those more skilfully worked and from these to polished stone, copper, bronze and iron, while it undoubtedly marks the stages of human progress, indicates no really radical change in the conditions of human life. Nor does any such radical change come into view during the many centuries of advancing civilization that gradually evolved the modern world. Startling as it may appear, it is nevertheless true that from the dawn of human history to the latter half of the eighteenth century, nothing had occurred substantially to alter the relation of man to his environment. At the beginning of the Stone Age he confronted the forces of nature with the power of his own muscles or those of animals that he had subjugated; and such was still his condition when the eighteenth century was drawing to a close.*

Then befell an event that radically altered his "place in nature." He discovered—or, if you prefer it, invented—the automatic power machine. That is to say, he discovered the possibility of liberating energy which was not the energy of his own body nor that of any animal body; of liberating

* The actual discovery was made early in the eighteenth century, but its effects did not manifest themselves until the period stated.

it in quantities to which there appeared to be practically no limit; of placing it under the control, if necessary, of a single individual, and of concentrating it at his pleasure on any area to which he might wish to apply it.

The change was fundamental. Henceforth his relation to his environment became radically different. From a personal conflict with his surroundings he could now retire to become a spectator of the activities of a giant slave whose colossal powers he could control and direct by the pressure of a finger. Nothing like it had ever occurred before. Even the invention of the printing-press and the discovery of explosives were events which had only affected the relations of man to man, leaving his position in nature untouched.

Before proceeding to the actual subject of this chapter, it will be useful briefly to consider the immediate results of the new order thus ushered in. The close of the eighteenth century found the world, as I have said, substantially unchanged from its condition in primitive times. Changes had, of course, occurred; but they were progressive changes. The new objects and new conditions which had appeared were but modifications and improvements of things and conditions previously existing. The ship of Captain Cook was an improvement on the ship of Hanno the Carthaginian, but it was not essentially different; just as the ship of Hanno was but an advance in detail on the canoe of the barbarian. The principles and methods of construction were alike in all, and between the earliest and the latest was an unbroken succession of intermediate forms illustrating the gradual accretion of experience and skill.

So, too, in regard to the general conditions of life. In all directions there was improvement upon primitive methods and appliances; nowhere was there a radical change. The forest trail or caravan track had developed into a road; the primitive chariot or cart into a coach. But land transport, in all essentials, was what it had been when the Pyramids were building, or when the cave-men followed the migrating reindeer.

Nor was there any hiatus in industrial traditions. The *Victory* was built of the same materials and put together by the same methods as was the ship of Tarshish. The textiles of Lancashire came from looms in all essentials identical with those that yielded the Babylonish garment of antiquity. The pottery of John Dwight, of Elers and of Wedgwood was produced by processes that were but an advance in

detail on those in use when Abraham came forth from Ur of the Chaldees. The chair that Thomas Chippendale made for Sir John Soane was wrought with hand-wielded chisel and gouge even as was the chair of Queen Hatshepsut, made more than four thousand years previously. And so in every direction; the ancient craftsman lived again in his descendants. The maker of rebecs would have been quite at home in the workshop of Stradivari or Forster; the masons who worked under Kallikrates at the building of the Parthenon could have worked equally well under Robert Adam at the building of the Adelphi.

But there is no need to labour the point. The broad fact is evident that at the close of the eighteenth century the human hand was still the main instrument of production and human muscles the main source of motive power.

On the changes that ensued as the immediate results of the appearance of the automatic or power-generating machine it is unnecessary to dwell. They are before our eyes and by no means tend to pass unnoticed. The revolution is within the memory of men now living, and, indeed, continues within view of the present generation. Merely noting how, in a few short years, the whole conditions of life have changed; how standards of distance and time that have held good for thousands of years have been suddenly abolished; how the materials and methods of construction in universal and exclusive use from the remotest antiquity have in a few years become obsolete; how entire industries, such as wooden ship-building, have almost utterly disappeared; how timber and stone everywhere give place to the once-refractory iron; and how natural forces, such as wind and current, formerly invincible, have suddenly ceased to be the arbiters of human action: we must pass on to the consideration of some of the results of those changes, the secondary consequences of the appearance of the power-generating machine, *i.e.* its reactions as opposed to its actions or immediate effects.

These reactions, important and interesting as they are, have received an insufficient amount of attention. For the majority of persons appear to be mentally near-sighted. Like a physically near-sighted person, who sees distinctly those things only which are close to his eyes and to whom the rest of the universe is generalized into a disregarded blur, their attention is focussed upon relations which are immediate and primary. Their ideas on causation are concerned

exclusively with proximate effects and take no note of those secondary or remote effects which are commonly the most important. There is, moreover, in their mode of thought a certain bias, a tendency to pursue those effects which were contemplated and to ignore collateral effects which were not so contemplated. To take a familiar instance: in considering the anticipated results of compulsory education, attention has usually been focussed upon those direct results which were contemplated and intended—the acquirement by the entire population of certain knowledge with a (presumed) increase in intelligence, culture and morality; whereas other results, arising from the involved sacrifice of freedom, of fresh air, exercise, leisure, amusement, eyesight, knowledge acquired by observation, the manual dexterity and handiness resulting from childish sports and occupations (to name only a few) have, until quite recently, received little or no attention; as has also the effect on contemporary culture of the sudden creation of a vast uncultivated reading public demanding literature adjusted to its mental condition. These collateral results appear to have been quite unforeseen, and when medical inspection of schools and the state of the contemporary press have at length brought them into view they have created uncalled-for surprise.

A like proximate and one-sided view is apt to be taken of those wonderful advances in mechanical design of which our generation is the witness. The new machine is considered exclusively in relation to its efficiency and the immediate results thereof. If it is a manufacturing machine, then its rate of production occupies the attention, together with the involved fall in the price of the thing produced. If it is a new road motor, then its speed and the accompanying possibility of more rapid transit are the points considered; or if a new flying machine, again increased facility of transport and the abolition of the limits of travel. Here the consideration ends. Whether these extensions of power will produce any secondary results; whether they will set up conditions favourable or unfavourable to society; whether, in the end, they will increase or decrease the general welfare of man; are questions that appear to excite little interest.

Yet these more general considerations are the really vital ones. That this or that commodity can now be purchased for a tithe of its former price, or that a man may now travel to New York in the time that it would have taken his grandfather to journey to Edinburgh, are matters that, forcibly

as they impinge on the attention, are of less consequence than that mankind is, or is not, progressing towards a state of greater bodily fitness and a fuller and more pleasurable life. It is thus that we reason in the direction of our individual lives, planning our actions, not with an eye to immediate pleasure or profit, but with a view to the establishment of permanently desirable conditions of existence.

To such considerations the present section of this book will be devoted; the more remote effects of mechanism on the life of society, effects which we may conveniently describe as its reactions, in contradistinction to its actions or immediate effects. In this section the word "mechanism" will be used as designating the power-generating machine together with the machines to which it imparts motion—power-consuming machines—which for our present purpose may be regarded as complementary parts of a single mechanism. The latter machines fall into two categories, machine-tools, such as lathes, power-saws, planing machines, etc., and mechanical producing appliances such as power-looms, printing-presses, paper-making machines and other mechanisms which turn out a complete product. These we may conveniently designate "producing machines."

The reactions of mechanisms may be considered in four directions: Thus it reacts (1) upon itself; (2) upon the human environment; (3) upon man collectively, *i.e.* on large groups or on Society as a whole; and (4) on man as an individual. To these considerations we may now proceed in the order stated, addressing ourselves first to those more direct reactions of mechanism on itself which are of importance as generating in their turn further reactions on man.

As soon as we begin to examine the effects of mechanism on mechanism, we are brought face to face with a very important fact that commonly escapes observation; which is that the control exercised by man over the forms and development of machines is almost inappreciable. We perceive, in fact, that mechanism is an independent entity governed by its own laws and having no necessary connection with human needs and human welfare.

This simple fact is so little appreciated that it seems necessary to enlarge on it to some extent. The common conception of an inventor is that of a person who is endeavouring to supply a long-felt want; who is seeking to produce a thing the use and necessity for which is established; and

the invention is conceived as a thing produced to a specific end. But this is quite erroneous; for though the mechanical investigator, or inventor, usually has the idea of use and application in his mind in general terms, that idea has little, if any, effect on the result of his labours, that result being determined by conditions beyond his control.

It is generally realized that the establishment of a new mathematical truth is rendered possible only by the existence of a body of knowledge already established; and that between the new truth and the knowledge previously possessed there is a necessary relation. But it is less generally understood that this is equally true of other forms of knowledge, including physical science. For, although, in the latter, isolated facts may become known by casual observation, until they are brought into relation with the body of known truth they do not properly constitute knowledge, and are capable only of purely empirical application. Science advances progressively from the known to the unknown, and new investigations and discoveries are possible only in that area of the unknown which is immediately contiguous to the known. This truth is equally applicable to the knowledge of mechanism which expresses itself in new inventions. That knowledge is capable of extension only into those parts of the unknown that immediately adjoin the region of existing knowledge. The investigator is therefore strictly limited in regard to the matter which he shall investigate, while, as to the results of his researches, he has no more choice than has the geographical explorer over the conditions that he shall discover in a newly-visited land.

The truth of this statement is easily perceived when once we realize that a machine is merely a concrete expression of knowledge; that it is an experimental verification of a hypothesis; and that when we speak of a new invention we are really referring to an advance of knowledge which is demonstrable in a concrete form.

Simple and obvious as this truth is, it is nevertheless quite alien to the common way of thinking, as shown by the questions put to investigators by lay enquirers. A bacteriologist, for instance, who is investigating the effect, let us say, of coloured light on micro-organisms, will be met by the remark: "Yes, it seems very curious and interesting; but when you have found out all about coloured light, of what use will the knowledge be?" The answer is that no use was contemplated. The knowledge sought was the exten-

sion of the knowledge already existing. It was the next step in the advance of Science. Similar questions are put to inventors; and judging by the foolish comments that are made on the " unpractical inventions " that are brought to the Patent Office, people find it difficult to understand that the inventor is concerned with his invention and not with its applications to human requirements.

Thus we see that advances in mechanism are made, not because they are required, but because they are inevitable; that mechanical improvements are the concrete expressions of knowledge that is advancing in accordance with its own laws of progress, unaffected by the needs or the desires of man. That, just as the discovery of antiseptic surgery by Lister and that of immunization by Almroth Wright, followed inevitably from (and were made possible by) the previous discoveries of Pasteur; so the modern locomotive and the Parsons turbine evolved inevitably from the body of mechanical knowledge accumulated by Watt, by Newcomen, by Papin and other early investigators. The fact that these mechanical discoveries, like the biological ones referred to above, have been applied to the use of man, tends to create an illusion as to the part that has been played in their evolution by the demands of human convenience. We may, therefore, usefully consider one of them in somewhat greater detail. Let us take the locomotive.

Disregarding the experimental cylinder of Papin, the first stage in the evolution of the locomotive was reached when Newcomen invented an engine of which the motive power was the heat of burning coal transmitted by steam. But the motion of Newcomen's engine was rectilinear, and as the rhythm of movement was irregular, the up and down motion of the piston could not be converted into rotary motion. The next stage was the substitution by Watt of the expansive force of steam for atmospheric pressure. As the steam could be admitted to the cylinder at regular intervals, a regular rhythm of movement was produced and it was now possible to convert the original reciprocating motion into rotary motion. The third stage was reached, when, by successive improvements, the rotary motion so produced had become sufficiently powerful to move a weight greater than that of the engine itself. For if the engine could move an object heavier than itself, it could move itself: *i.e.* it could become a locomotive engine. Accordingly the locomotive had arrived.

Here we may make a slight digression to note some of the collateral phenomena of mechanical advance, which are well illustrated by our present example.

As soon as the new machine had passed from its first, experimental state, it was perceived that its efficiency in two respects, power and speed, was greater than that of any previously-existing tractor. It could move a greater weight than could a team of horses and it could move it more rapidly. But this great efficiency was accompanied by serious defects. The great weight and rigidity of the engine made it incapable of travelling rapidly on an ordinary road. It would have shaken itself to pieces in the first mile. Hence it became necessary to provide it with a smooth iron road. But this at once pinned it down to a particular route from which it could under no circumstances deviate either for convenience or safety. Furthermore, the great weight, combined with high speed, resulted in a momentum that rendered frequent stoppages impracticable. Hence certain stopping-places had to be established at relatively distant intervals along the route.

These adjustments to the necessities of the machine were in direct opposition to human convenience. Persons wishing to use the locomotive had to go, or send their goods, not only to the railroads, but to certain appointed places on it, and passengers had to be at the stations at certain appointed times. As a result, persons who required frequently to use the new transport tended to take up their abodes in localities adjacent to the stopping-places, although such localities might be otherwise undesirable; and a further result was the tendency to aggregation in particular localities, even though such aggregation were otherwise disadvantageous.

From this illustration, then, we gather that one form of machine tends to beget other forms. We also observe incidentally: (1) That superior efficiency in any one respect determines the adoption of a machine in spite of counterbalancing defects and inefficiencies; and (2) that the conditions of human life become adjusted to the nature of the machine, and not the nature of the machine to the conditions of human life. That the machine, in fact, dictates the conditions and that man accepts them.

Mechanism thus reacts upon itself by stimulating its own growth. Machines beget machines by a process of evolution. But they produce a similar result in another and more direct manner. They constitute the actual agents of production.

The first steam engines were necessarily made entirely by hand. Their parts were forged on the smith's anvil or turned by hand on foot-driven lathes. But as soon as an efficient steam motor had been produced there came a change. The relatively feeble manual power was replaced by mechanical power. Lathes and other workshop appliances could now be driven at greater speed and with greater force. Larger engines could now be made, and with the aid of these, larger and more powerful lathes, saws, planing and boring machines. Thus the motor on the one hand and the power-driven tool on the other, acted and reacted on one another. Increased size and power of the motor made possible larger and more powerful tools; increase in the size and power of the tools made possible the manufacture of yet larger motors.

But there is yet another reaction of mechanism on mechanism. Machines, as we have seen, are of two kinds: those that generate motion or power—motors—and those that apply motion to particular purposes. The latter we have agreed to call machine tools or producing machines, according to their functions. Now, the appearance of the automatic motor practically brought these two types of machine into existence. Some examples of both types had, it is true, existed from quite early times. The foot-lathe and its relative the potter's wheel are examples of mechanical tools and the hand-loom and the printing-press are examples of producing machines. But in general neither type of machine was practicable so long as muscular energy was the only source of power. A hand-driven machine tended to be less efficient than the hand without the machine. It wasted power, and a machine that wastes power is a mechanical failure. But with the appearance of the automatic motor, backed by virtually unlimited power, mechanical production became more economical than manual production. The producing machine came into use and began rapidly to develop along its own lines. Let us see what those lines of development are.

In order that a machine tool or a producing machine may put out its maximum of work, it is essential that there shall exist a complete correlation of all its parts, including the attendant workman. A power-driven grindstone will grind more tools, a power-driven saw will cut more wood, than similar appliances worked manually, provided that the tools or wood are brought to the machine with the necessary

rapidity. Otherwise the power is wasted. But so long as there remains a human factor in the process, this complete correlation of parts and co-ordination of movements cannot be ensured. The man is not part of the machine; his movements do not necessarily synchronize with its movements and his speed may not be equal to its capacities. Hence it will be economical to replace him by some mechanical attachment which shall do his work at a speed which is always exactly adjusted to the speed of the rest of the machine. Thus, in cutting a screw-thread with a hand-chaser, the tool must be moved at a speed exactly proportionate to the rotation of the work, and this the workman may fail to do. But if the hand-tool is replaced by a cutter geared by change-wheels to the lathe itself, the ratio of movement between the tool and the work becomes constant and unalterable. Variations in driving power take effect equally on each. So, too, in a rotary printing-press or a Fourdrinier paper-making machine, the printing drums of the one cannot over-run the inking appliances or the paper-feed, or the winding drum of the other over-run the drying rollers or the pulp-feed. The whole machine moves together; its parts are in an invariable relation to one another and to the whole, and hence every ounce of power that is put into it is fully utilized.

The development of the producing machine is therefore in the direction of ever-increasing automatism. The more the human element can be excluded, the higher will be the mechanical efficiency. Complete automatism, the total elimination of the human worker, is the goal of perfection towards which it is progressing. Incidentally, the reduction in the number of workmen involves a saving of expenditure on wages; but we are here concerned with mechanical considerations only.

To sum up the reactions of mechanism on mechanism: we see (1) That machines tend to beget machines (*a*) by a process of evolution, and (*b*) by themselves becoming the agents of production.

(2) That the motor, or power-generating machine, tends to beget the producing or power-consuming machine.

(3) That both types of machine tend, as a condition of their mechanical efficiency, to become ever more completely automatic, with a correlative elimination of the human factor. And from the last conclusion we draw the corollary that, since the first type of machine tends to replace manual

power and the second type to replace manual skill; the development of mechanism as a whole tends to replace manual work as a whole. That is to say that the evolution of the machine tends to the exclusion of man from the principal field of his activities.

CHAPTER VI

REACTIONS OF MECHANISM ON THE HUMAN ENVIRONMENT

In our examination of the reactions of mechanism on the Human Environment, if will be convenient to consider the latter as consisting of two parts, the Primary and the Secondary.

By the Primary Environment we mean the natural conditions as they were encountered by primitive man.

By the Secondary Environment we mean those conditions which are results, direct or indirect, of the presence of man and which will thus include human institutions and aggregates of man himself.

The reactions on the former are comparatively simple and may be briefly considered in somewhat general terms: the reactions on the latter are more complex and will require to be examined in more detail, inasmuch as they are intimately connected with the phenomena of modern life and with the future of our civilization.

I.—Reactions on the Primary Environment.

The reactions on his environment of man before mechanism were comparatively slight. Even in a densely-populated country, up to the end of the eighteenth century the changes had not profoundly disturbed his original environment. The country had become intersected by roads and canals, dotted with villages, towns and cities, the coasts sprinkled with harbours, the sea and rivers with ships; forests and heath had given place to cultivated lands, and here and there a mine or quarry broke the surface. But man was always near to, if not actually in contact with what was substantially his natural environment. In places its attractiveness was diminished by his works; the coal and metal mines, clay-pits and large potteries were a disfigurement, but they affected

only small areas. In rare cases, as, for example, the Sussex Iron Works, by which in the seventeenth century the surrounding country was denuded of trees, actual injury was done to considerable areas. But in general the presence of man and his works tended to add interest and beauty to a locality. The old villages, towns and cities, built always with a conscious aim at beauty, were an adornment to the country. The structures associated with human industry: the great thatched barn, the red-roofed malt-house, the oast with its quaint, inquisitive cowl, the wind-mill, the water-mill with its little cascade and sleepy pool, the lime-kiln, the village pottery, the smithy; the ship-builder's yard, fragrant with tar and gently clamorous with the ring of mallets; the harbour crowded with barques and brigs, and schooners and uncouth but homely galliots; the red-tiled, black-timbered sail-lofts, the wooden mast-houses, the great quay-capstans, jib-cranes and whipping-stages; all were pleasant, picturesque, interesting and comely. Nor were they comely by chance. The men who built the barn, the malt-house or the water-mill were craftsmen born and bred to a sound architectural tradition. The old ship-wright gave deep thought and abundant care to the beauty as well as the sea-worthiness of the new ship on the stocks; and not till the ship-carver and painter had adorned her head with the carved figure or "family" and her stern and quarters with gilded scrolls and cherubs, did he send her forth, perhaps the loveliest object ever created by human industry.

And his inroads on unreplaceable material were usually moderate—so moderate as to offer no menace to posterity. In general he may be said to have lived on the interest of his environment, making little demand on the capital. The bulk of his works were of wood and were so durable that replacement of the material could often occur during the lifetime of the work. The great tithe barn might easily live on to witness the maturity of oak trees raised from the acorns of those of which it was built. And the same durability was evident in works executed in capital material. The stone from the quarries, the clay from the pits, went to the making of buildings designed to last for centuries; and even the lime burned in the old kilns still looks down on many a village street from the pargeted fronts of the ancient houses.

The use of metals, too, was sparing. They were employed only where their special properties made them indispensable;

in the case of iron for tools, hinges, anchors, fire-grates, locks, ship fittings and other objects demanding the strength, hardness and resistance to heat characteristic of that metal; in the case of copper, brass, lead and tin respectively for sheathing and bolts, for cooking-vessels, for roofs, pipes and rainheads, for the making of solder or of pewter to be employed in the fabrication of platters, dishes, drinking-vessels, etc.; in short for purposes for which a particular metal was a more suitable material than any other.

Thus, broadly speaking, pre-mechanical civilization had left the original environment of man largely undisturbed, its outward aspect little changed, its store of mineral wealth almost intact, and in so far as it had reacted on human environment, the result of the reactions was to increase the habitability of the world for man.

The arrival of the Power Machine produced an almost immediate change. At once there came a great increase in the consumption of metal, especially iron, and of coal; and the relations of these materials to the Power Machine created what we may call a circle of causation. The application of power to the mines produced a greatly increased output of coal and ore; the application of power to the blast-furnaces increased the quantity of ore turned into metal; the application of power to the work-shops—to lathes, forge-hammers and other machine tools—increased the production of engines and derived machines such as power-looms, spinning-mules, pug-mills, blungers, power-saws, planing machines, etc. But all these machines were composed of iron and all derived their motive power from coal. Hence while the power machine greatly increased the output of iron and coal, it was also an insatiable consumer of both materials.

Thus by the advent of the Power Machine was inaugurated the age of coal and iron; and straightway there began to creep over the land a change which has continued and still continues. In place of the small aggregates of hand-workers, great mills and factories arose; and since the position of these was determined by local conditions favourable to great industries—a specially suitable climate in the case of the Lancashire cotton mills, or proximity to sources of material such as coal and iron in this and other trades—the factories tended to rise in large groups, around which were clustered the dwellings of the multitudinous workers. And so came into existence the great industrial town, an assemblage of huge factory buildings, each attended by its forest of chimney

shafts, and all around range after range of dull streets, flanked by unending rows of mean houses, all crammed together to save space, and peopled by hurrying crowds of dingy workers. Above is a pall of the black smoke that pours incessantly from the myriad chimneys; an endless shower of soot descends steadily through the "twice breathed air"; everything around—chimneys, factories, houses, lamp-posts—is blackened and grimy, and the very kennels of the streets run ink. Within the factories the new industry proclaims the sovereignty of the machine. In the boiler-house half-naked stokers, streaming with sweat, tend the fires and trundle away barrow-loads of glowing cinders; in the great shops or work-rooms the operatives tend the machines in a hot, stuffy atmosphere, charged with the smell appropriate to the particular industry, amidst a deafening roar and clatter, while all around a bewildering complication of spinning shafts and wheels, plunging rods and flying belts confuse their senses and constantly menace their bodily safety.

But the squalor that the factory breeds is not confined to the town. For miles around, the canopy of smoke spreads, the shower of soot extends, as testified to by the grimy fields and stunted vegetation; and yet farther afield pit-heads, squalid mining villages and refuse heaps from the works disfigure what was but yesterday a fair and smiling land.

Even far away from these centres of industry the Power Machine makes its arrival felt. In all directions, the railway, creeping abroad, takes a toll of beauty in return for its convenience. The characterless, unlovely station or terminus or goods-yard has taken the place of the old coaching inn; the raucous shriek of the whistle replaces the cheery note of the coach horn. And down by harbour or dock, huge steam cranes, cast-iron bollards, iron staging, lines of railway replace the old windlass, the wooden posts, the timber piers and the hand-truck or horse-wagon. Beside the quays, in place of the comely sailing-ship, with her gay figure-head and gilded stern, her carved steering wheel, her clean decks adorned with Flemish-coiled ropes, her taper spars and web of rigging, and her crew of mahogany-faced shell-backs all redolent of the sea and suggestive of strange lands and nautical adventure; looms up the gaunt, unlovely steamer, shouting "iron" from every rivet and plate and angle-iron, painted for bare utility, with never a spot of ornament to show that anyone has ever cared for her or taken a thought

for her appearance, never a touch of humanity from her chisel-like stem to her characterless stern; with her smoke-stack, her steam-pipes, her steel-tube masts and her crew of smutty-faced stokers and nondescript deck-hands, a mere transport machine, hardly more nautical than a goods train. The whole atmosphere of the quay-side is changed. The timber and rope, the whiff of tar, the sing-song of mariners and cargo-whippers and the chirp of tackle-blocks, have given place to massive iron appliances, the reek of engine oil, the clank of chain tackle and the clatter of the steam winch.

In the villages, too, even far away from the industrial towns the change is evident. The coaching inn is closed or shrunk to a mere ale-house; the local industries are " shut down "; the stage-wagon, the pack-horse, the coach have vanished from the road, the barge and gaily-painted monkey-boat are seldom seen on the neglected canal; the windmill has shed its disused swifts and a chimney-shaft has grown up alongside; and down by the stream the mill-wheel has stopped and mosses and ferns have taken possession of the crumbling floats.

These are but outward appearances: the changes wrought in the external aspect of the world. But it is with these that we are at present concerned. We are examining the reactions of mechanism upon human environment; and the question whether such reactions have tended to make the world a more or a less pleasant place to live in is a very practical one. If it should appear that the reactions of pre-mechanical man upon his environment tended to produce conditions and things which were pleasant and beautiful, and that the reactions of mechanism resulted in conditions which were unpleasant and things which were ugly and forbidding, this would be a material fact which even the most practical thinker could not ignore and which would have to be cast into the general account of the total reactions of mechanism on human welfare.

Turning from the reactions on the outward aspects of the environment to those on its material character we note that the advent of the Power Machine has radically altered the conditions affecting the consumption of material. Pre-mechanical man, as we have seen, lived mainly on the interest of his environment; mechanical man lives chiefly—and very extravagantly—on the capital. We have already noted that the earliest reaction of mechanism was an increase in the consumption of coal and iron. This increase has

continued and the consumption grows daily. To state its amount in tons would be futile, since the enormous figures would convey no intelligible meaning. All over the civilized —and even semi-civilized—world great factories, smelting-furnaces, railway-engines, steam-ships, gas-works are devouring coal in unbelievable quantities. Every unit of electric power, every glimmer of electric light, every manufactured article that is sold, represents so much coal consumed. And the consumption of iron is on the same gigantic scale. Gradually there is being built up around us a world of iron. For the material is cheap, and though refractory to the craftsman, is peculiarly amenable to the Power Machine. Iron ships, iron bridges, iron buildings have ousted those of timber, stone and brick; iron utensils and domestic appliances are pushing out those of wood; and as a mere packing material for food, tobacco or liquids, iron in the form of " tins " comes daily more and more into use. It has even been proposed to use it for the manufacture of household furniture—not because it is a suitable material for such articles but because they could be easily and cheaply made by machinery.

Other capital materials are being consumed on a similarly enormous and wasteful scale. China clay—the indispensable material of porcelain—is being used in large quantities for many temporary purposes, including the " dressing " of cotton textiles and the making of papers of a comparatively low grade and especially for the production of that peculiarly vile form, described with unconscious irony by the paper-makers as " real art." Indeed the inroads upon the rather limited British deposits of this clay have been so great as to make an appreciable impression on the sources of supply. The consumption of chalk shows a similar contrast with that of the pre-mechanical age. The modest chalk-pit has grown to a vast excavation in the floor of which lines of railway conduct endless trains of trucks from the face, where a great machine tears away the surface of the artificial cliff, to the wharves, or direct to the cement works; and in many regions —as, for instance, the once beautiful Medway Valley—the country is made hideous by the clustered factories, the forests of chimney-shafts and the pall of smoke and grey dust.

But in addition to this enormous consumption of capital material, that of nominally replaceable material is on a scale that precludes replacement. The extremely impermanent nature of many of the products of the industrial machine

renders necessary frequent renewal and so maintains a constant demand. Cheap machine-made furniture has but a short life; and huge quantities of wood are consumed in the cases and barrels in which many commodities are sent out from the factory. A single issue of the daily press represents the destruction of a quite considerable area of forest—it takes eight or ten trees to produce a ton of news-sheet paper and from eighty to a hundred tons of paper to produce one day's issue of a large newspaper—and this is but a part of a day's consumption of wood pulp. The appearance suggests that consumption is more rapid than replacement, and the consumption is still growing.

To sum up the reactions of mechanism on the primary environment of man, they appear in the main to be:

1. A general "disimprovement" in the outward aspects of the regions inhabited by man; a destruction of natural beauty and the creation of areas of devastation.

2. The creation of industrial towns of a repulsive and forbidding exterior and affording a disagreeable and physically unfavourable habitat for human beings, who are nevertheless compelled to inhabit them.

3. A consumption of the natural resources, both capital and replaceable, on a scale which leaves the world appreciably poorer and may even constitute a menace to posterity.

Thus the tendency of these reactions is to make the world less suitable as a habitation for man—less pleasant and less healthy; in other words their tendency appears to be towards the transformation of a favourable environment into one relatively unfavourable.

II.—Reactions of Mechanism on the Secondary Environment.

In the preceding chapter we have seen that the Power Machine, as soon as it had emerged from the primitive, experimental stage, proceeded to develop in two directions: first it imparted motion to separate mechanisms of the kind we have agreed to call machine tools and producing machines; and secondly, it attained the power of moving itself, and, by extension of that power, of moving vehicles or vessels attached to it. Thus have developed, side by side, two separate types of the Power Machine, the Stationary and the Locomotive, each reacting freely on the other and both reacting severally and jointly on human environment, on

human activities and on human welfare. The principal sphere of influence of the Stationary Machine is in what is called in defiance of etymology, Manufacture, while the Locomotive Machine determines the conditions of the transport of men and things and to a great extent the communications between distant places.

We will consider first the Locomotive Machine.

(*a*) REACTIONS OF MECHANISM ON LOCOMOTION AND TRANSPORT.

The arrival of mechanical locomotion in the first half of the nineteenth century found non-mechanical locomotive appliances in a state of active advance. Particularly was this the case in respect of overseas transport. The great improvements in ship designing had brought into existence the swift clipper ships of the *Thermopylæ* class, by which long voyages were performed in almost incredibly short periods of time. Indeed, it may be said that the influence of the power machine has produced much less change in the conditions of marine than of inland transport. For it is obvious that in making the comparison, we must take as our data, not the conditions of non-mechanical transport which existed at the time of the change, but the conditions which would have prevailed at the present time if the power machine had not been invented. Those conditions would have included a much larger number of ships of a smaller, individual tonnage, a vastly larger maritime population, a smaller total of commodities transported and a great increase in the time consumed by individual voyages. The sailing ship of the improved type would have been fairly competent to deal with the world's commerce but would have afforded much smaller facilities for personal travelling.

But it is in respect of inland transport that the really revolutionary change occurred. The horse, which the locomotive engine displaced, was not only the swiftest and the most powerful means of transport then available; it was the final means, susceptible of no appreciable alteration excepting that achieved by the improvement and multiplication of roads. And the comparison between the respective efficiencies of the horse and the engine is absurd. An express train covers a two days' coach journey in four or five hours and carries hundreds of times the number of passengers; a goods train in a single night may complete a

journey that would have taken a stage wagon more than a week, and carries hundreds of times the quantity of goods.

The direct effect, then, of the locomotive machine was to produce a sudden contraction of the distances separating localities, and a corresponding expansion of the areas within which ordinary relations were possible. Remoteness and contiguity began to be conceived in new terms, and the immense power of the new transport revolutionized the system of distribution of commodities. Local characteristics of men and things tended to give place to national, and these to cosmopolitan. Local styles of building, based on locally obtainable material, tended to disappear as the transport of heavy material became easier; increasing facility of communication tended to the elimination of differences and the production of uniformity in men, places and the available commodities.

The new conditions of land transport were not merely a modification of the old; not a mere acceleration of the existing means of locomotion. They were from the first fundamentally different. The old arrangements were of the nature of adjustments which had been made gradually to meet individual or local needs. The farmer's cart or saddle horse, the rich man's coach or the vehicle of the tradesman or professional man, were controlled entirely by those who used them; the carrier's cart was exactly adjusted to the needs of a local population; and even the stage-carts, wagons, coaches and post-chaises were individually owned and adapted consciously to the requirements of a limited area. And this is true, to a less extent, even of sea transport; for the large ships were supplemented by a great number of smaller craft which were in close touch with the ports to and from which they traded.

With the Locomotive mechanism the case was quite different. Little adaptation to particular human needs was possible. The necessities of the machine were the first consideration; the adaptation had to come from man. A special road was required and the route selected had to be that most suitable for railway engineering. And from the first, a railway was a single great compound machine, concerning itself in general terms with a large area and taking no cognizance of individuals or small localities or communities.

There is in mechanism a certain illusory quality which is not sufficiently appreciated. Its tendency is to promise

more than it performs. Every new advance of mechanism encourages expectations of some radical change in the conditions of human life, of the relief from some disability for which mankind has long sought a remedy, of some benefit long desired and now, at length apparently within man's grasp; and yet when the new appliance has fairly settled into its permanent position, behold! the essential conditions of life are much as before; the disability remains uncured and the benefit still is to be sought.

The explanation of the disappointing lack of result from mechanical advances is quite simple. The new mechanism is more efficient than the old, and the anticipated results are conceived in terms of a comparison of the efficiency of the one with the efficiency of the other. The difference between the two efficiencies is the expected benefit. But in practice the new form, as soon as it has become established, proceeds to set up compensatory reactions which have not been allowed for, but by which the advance is largely cancelled. The new conditions have become the normal conditions, to which human life has become adjusted; the increased efficiency generates increased demands; equilibrium is re-established and the expected surplus or advantage disappears.

An example of this process of adjustment and elimination of results is seen in the case of mechanical transport as applied to persons. That there has always existed a vague but strong desire for the power of rapidly traversing long distances is shown in all kinds of old writings, from the Psalmist's sigh for the wings of a dove to the story of the magic carpet or the highly locomotive slippers of Little Mouck. But in these instances we see that the desire is conceived in personal terms, and that it is not mere unconditional locomotion that is desired. The wings of a dove would have served the Psalmist's purpose indifferently if all the destroyers of his peace had been similarly equipped; and Little Mouck's advantages would have vanished if the entire population of the world had been furnished with magic slippers. The desire exhibited in these old stories is for power—for the power of abolishing space and time—coupled with its non-possession by the rest of humanity. The imagined benefit is the acquired superiority of the possessor to all other persons.

It is to some extent in this spirit that advances in locomotion and other activities are really conceived—uncon-

sciously—by most persons. The new condition is seen in the old setting. When thinking of the advantages of a more rapid locomotion they think principally of themselves as travelling more rapidly. The fact that everyone else would also be travelling more rapidly is less vividly realized; and there is a total failure to appreciate that the general increase of rapidity would merely create a new standard of speed to which all would have to conform, leaving conditions substantially unaltered; that possession of the new power by all cancels possession by some.*

Yet this is to a great extent the actual course of events. In the pre-machine age, a journey of a hundred miles was a great undertaking. Hence such journeys were not unnecessarily made, and the necessity for making them was avoided. Human life was adjusted to a generally stationary condition. Villages and even farm-houses were to a great extent self-contained and self-sufficing; the country town with its weekly market, to which the farmer could bring his produce and the various craftsmen—the weaver, the basket-maker, the joiner, the potter—the surplus of their wares, was the centre of an economic area practically complete and self-supporting. The normal circumstances of life called for no journeys that were beyond the powers of horse or wagon, or even the rural pedestrian. The occasion for a journey outside the market area was some quite exceptional occurrence.

But with increased facilities for locomotion came a gradual change. Journeys, both long and short, became more frequent. There was more travelling—at first voluntary, but soon it ceased to be a matter of choice. The facilities produced the travel. New conditions arose. The village was to a great extent supplanted by the market town; the market town by the county town; the county town by the metropolis; and the latter became more and more dependent on industrial areas, home and foreign. The region with which each person was concerned became larger; the traversing of greater distances became habitual. The increased speed and increased distances became the normal speed and distances, upon which the ordinary conditions of life were

* This failure of imagination was well illustrated during the war by the Germans in their use of aircraft and poison gas. The introduction of these new appliances, they apparently believed, would secure German supremacy. They were unable to grasp the truth that they were only creating new conditions of warfare which would apply equally to themselves and their adversaries.

based. Human activities had become adjusted to the new facilities and in becoming adjusted had absorbed the surplus.

At the first coming of mechanical transport it must have seemed that a great economy of time was about to be effected, and a great increase made to the available leisure of mankind. For the new conditions would be seen, as we have said, in the old setting. The journeys thought of would be the old journeys, performed in a fraction of the former time with a free gift of the difference. The weekly trip to the market town would take an hour instead of a day: the rarer journey to London would take a day instead of a week. The difference would be all clear gain. Yet, after a century of mechanical locomotion at ever-increasing speed, we hear on all sides complaints of the hurry and bustle of modern life, of the strenuousness and lack of leisure in "these days of high pressure," of the impossibility of rivalling the careful, patient work of "the old, leisurely days" because "we haven't the time"; and it is a fact, the correctness of which few will deny, that the modern man spends a greater portion of his life in getting from place to place than did the man of any former age. And since time spent in travelling—especially the passive travelling of the carried passenger—is mostly time wasted, it will be seen that the actual result of increased speed of locomotion is exactly the reverse of that which would have been anticipated. There is a curtailment of leisure and an increase in the amount of time wasted.

The phenomena attending the advance in locomotion and indeed other mechanical advances, have a certain analogy with those attending the increase of personal income. A man whose income from £200 per annum, gradually rises by small increments to £800, is sensible of little change. He receives more but he seems to grow no richer. Each new increment becomes absorbed in slightly increased expenditure, producing a slightly raised standard of luxury to which he immediately becomes adjusted. At the end of the period his condition seems unchanged; he still has a little less than he desires.

But his condition is not unchanged. It is in fact radically altered. For if, by some misfortune, his income should suddenly drop to the £200 on which he formerly lived in comfort, he would be in a state of actual poverty. His needs have become adjusted to the higher income.

And so it is with the locomotive apparatus of a society.

During the later phases of the Great War, the submarine blockade produced in this country a serious shortage of food. If that blockade had been as complete as the Germans intended, we should have been reduced to starvation. But such a blockade, if it had been possible, in the eighteenth century would have produced but a trifling inconvenience; in the seventeenth century its effects would have been negligible; in the sixteenth century no one but the mariners would have known of its existence.

Again, to take an instance still more relevant to our present subject: from time to time we have been threatened with a general strike of all transport workers including railway-men. If such a strike should occur and should become universal and of any considerable duration, it would paralyze every form of human activity. Since the transport of coal would cease, every factory and mill in the kingdom would have to close, and there would be an immediate stop to all production, including that of gas and electric power. The ships would lie undischarged in the docks; stores of the necessaries of life would lie untouched in the absence of any means of distributing them. The population of the country would be in a moment deprived of food, light and warmth; and the entire fabric of society would collapse in a chaos of ruin and starvation.* In the pre-mechanical age such a catastrophe was impossible. The control of locomotion and transport was for the most part vested in the individuals principally interested in their use, and such public transport as existed—the coach, the stage-wagon, the canal-barge—would hardly have been missed. A strike of their personnel would have had to be notified by the leaders —through the agency of town criers—lest it should pass unnoticed.

Consideration of the threatened transport strike, by which, in a moment, all the gifts of mechanism would be withdrawn, enables us to appreciate the amazing alteration which the

* Since the above passage was written a strike of the railway-men has occurred and its results clearly showed that the picture which I have drawn is not exaggerated. In this case the railway men alone came out, all the other transport workers remaining on duty. Moreover there were on this occasion available vast numbers of motor lorries and spare drivers appertaining to the abnormally large military establishment, so that the suspension of railway transport was partly met by road and water transport. The actual consequences of the strike, therefore, serious as they were, gave merely a hint of the universal collapse which a simultaneous strike of all forms of transport would have occasioned.

introduction of mechanical transport has effected in the conditions of human life. Let us note some of these changes.

In the first place we observe that the present case illustrates the truth set forth in Chapter V., that a given mechanism having come into existence, lays down the conditions on which it will act; that it does not adjust itself to human convenience but demands that human affairs be adjusted to mechanical necessities.

We further observe that the conditions laid down by mechanism having been accepted, become obligatory on all. A new set of conditions is set up by which human activities become adjusted to the powers of the machine, and to these conditions every individual has to conform. All arrangements, both in private life and in commerce, are based upon the assumption that certain distances can be traversed in a certain time.

The conditions of mechanical transport laying down certain fixed routes, the distribution of men and commodities falls into certain systems from which it cannot deviate. We are reminded of this when, staying at a fishing town, we learn with surprise that the fish which we consume for dinner has come down by train from Billingsgate; or staying in a fruit district where we see wagon-loads of fruit passing to the railway, we must needs eat foreign fruit which has been brought by rail from Covent Garden. Although in a producing and collecting area, we receive our supplies through the ordinary channels of distribution from the central depot.

Further we note that the gain in speed and power has been purchased by the sacrifice of the conveniences inherent in the older system. While receiving benefits from a distance we have become dependent on distant localities over which we have no control. The simplicity and directness of supply and demand in pre-mechanical times and the easy adaptability of the individual to his immediate surroundings, have given place to complexity and indirectness and the compulsory acceptance of uncontrollable conditions.

But the most serious and vital change is the absolute centralization of the means both of personal locomotion and of the distribution and supply of commodities. Over these the individual has no control whatever. If he wishes to travel, he must do so by a route and at times laid down for him by strangers who have no knowledge of, or concern with his requirements. And if they should choose to close the route for a given time, he cannot travel at all. So with

commodities: their dispatch from, or supply to him are determined by agencies over which he has no more control than he has over the tides or the revolution of the earth.

Under normal conditions these defects have not been noticeable. The inflexibility of centralized transport has been accepted and the flexible individual life adapted to it. The abnormal conditions of war first brought the defects of the system definitely into view, when it was seen that overseas transport could be interrupted by an enemy, and inland transport abolished or modified by the directors of the system. War, however, is not only abnormal; it is a temporary state which we hope may be sociologically negligible in the future. But the strike cannot be called abnormal. Nor is it temporary. If not itself permanent, it is a recurring manifestation of a condition which is permanent and progressive.

The means of locomotion have become centralized into a single organization, having, as it were, a dual personality —that of the official directorate and that of the organized aggregate of the workers. The interests of both conflict more or less with those of the rest of the community; but whereas the directorate is partially controllable through the legislature and is interested in the maintenance of normal conditions, the union of the workers is entirely uncontrollable, is indifferent to the general welfare and tends to be collectively hostile to the rest of the community.

The growing inefficiency of organized transport, due to the lack of control by individuals and the community and the recurring threats of its suspension, will, undoubtedly, set up certain readjustments, such as the increased use of the individually controlled road transport. But here a further reaction appears. The disturbances of organized transport and the abnormal conditions due to the war have rendered possible the creation of a State department having practically dictatorial powers over the means of communication. And though this new dictator may be powerless to protect the community from the collective action of the transport workers, he will have full power to control, modify and possibly hinder those normal adjustments by which individuals and the community may seek to protect themselves.

Thus, in the immediate future, the locomotive activities of individuals in respect of their persons and goods will be subject to control by,

1. The conditions created by the existing forms of locomotive mechanism.

2. A Government Department having, over all means of locomotion, almost unlimited powers of interference and control, excepting the control of,

3. An organization which has the power, and declares its intention, to put a sudden and total stop to all organized locomotion if and when its own interests seem to be served by such suspension.

(*b*) REACTIONS OF MECHANISM ON INDUSTRY AND ITS PRODUCTS.

The remote effects of mechanism on the industrial activities of man manifest themselves in two directions; they affect the activities themselves by altering their nature and the circumstances in which they take place; and they affect the products of those activities; and both groups of reactions set up further reactions on the general conditions of human life.

Before proceeding to the examination of particular cases, it may be well to consider in general terms some of the phenomena which accompany the evolution of appliances and to note the effects of their development in complexity.

First we shall observe that as appliances become more complex and efficient, their use is accompanied by a progressive diminution of the distinctively human quality both in the action and in its result, with correlative increase in the manifestation of qualities which appertain to the appliance.

A simple example will illustrate the nature of the change. In a primitive house the door will usually be unprovided with any special arrangement for announcing the arrival of a visitor; who will accordingly make his presence known by any means that may be available. He may rap with his knuckles or with any object that he may happen to be carrying, and the sound produced will probably give a clue to his personality. Thus we may imagine the pilgrim tapping with his staff, the shepherd with his crook, the carter with his whip, the smith with his hammer, while the knight would thump with his mailed fist or kick with his mailed toe. The sound made by a woman or a child would be distinguishable from that made by a man, and habitual visitors would make recognizable signals. The provision of the simplest appliance—the tirling-pin, suspended by a

cord—would replace this diversity of means and sounds by a single means and a similar type of sound for all visitors. But, as the length of the cord would admit of considerable variations in the use of the pin, there would still be a good deal of diversity in the sounds produced and a good deal of distinctiveness would remain. The next stage of evolution —the knocker—further reduces the personal element and increases that of the appliance since, being fixed on a pivot, it has a definite ambit of motion and must be moved through the same arc by all visitors. Yet very distinctive sounds can be produced even with a knocker, as those of us can testify who remember the postman's knock and the hardly less distinctive footman's flourish. At the next stage, the pull-bell, the visitor can express his personality only by force and repetition, while at the last stage, the electric bell, he has no control over the nature of the sound produced excepting as to its duration. The human quality has entirely disappeared and is replaced by that of the appliance.

The same principle operates in the domain of industry, with important effects on the character of the product, as another example will show. If we examine an old wooden door-case, say of the fifteenth century, and compare it with a modern one, we shall note certain differences of construction. In the old form, the lintel and jambs were united by a mortise joint, the tenons of course being on the jambs on which the lintel rested. The head of the door-opening was commonly of an arched form—usually a low, four-centred arch—and not only the arch but also its imposts were cut out of the lintel. But even if the door-opening were square-headed, the head was still cut out of the lintel, the corner mouldings passing the mortise joint so that the mitres were cut in the solid lintel. In the modern form the opening is nearly always square-headed, the lintel—at least of the moulded frame—is united to the jambs by a mitre joint and the mitre of the mouldings is formed by the joint. Now this is very inferior construction, for a mitre-joint is hardly a joint at all; it is a mere apposition of surfaces, dependent for its strength on glue, nails, or other adventitious fastenings.

What is the reason of this change in construction from a strong to a weak form? A careful glance at the old door-case supplies the explanation. The still discernible facets on its surfaces show that they were not smoothed with a plane but were "trued up" *in situ* with an adze; and a

certain tell-tale irregularity of the corner mouldings shows that they were cut with a gouge, possibly tapped forward with a mallet. Now a gouge travels with equal ease along straight, curved or irregular surfaces or edges. Moreover it can be driven into corners. Hence the old workman could easily carry his mouldings round the curves of an arched head, or in a square-headed opening, could cut his mitres in the solid. The mouldings on a modern door-case, on the other hand, are cut with a moulding plane, or even with a moulding machine. Neither appliance can travel round a concave curve without special adaptation, and neither can cut into a corner. Hence arched heads tend to be avoided, and mitres cannot be cut in the solid. The mouldings are "run" on the straight boards before they are put together, and the mitre is produced by sawing across diagonally and joining the diagonal surfaces. Thus, the replacement of a simple hand tool by a more complex appliance, while increasing the speed of production and reducing the amount of skill demanded, involves a change of constructive method in accordance with the limitations of the appliance with a deterioration in the product.

In the second place we may note briefly (for the point will be amplified later) that whereas industrial activities conducted with simple hand tools are direct, those conducted by means of more complex appliances are more or less indirect, the actual productive act being preceded by certain preparatory activities, or preliminary processes, the complexity of which is usually proportionate to the complexity of the appliance. For instance, a hand-made cup is produced by "throwing" a ball of clay on the rotating potters' wheel and shaping it as it spins. The handle is rolled out, fashioned by the fingers, and, when it has been attached to the bowl with a drop of "slip," the cup is finished save for firing and glazing. But a machine-made cup must be preceded by a hand-made model of plaster—possibly preceded by a model of clay. From the plaster model a mould is made, in which the actual cup will be produced; and similarly the handle must be preceded by a model and a mould. But when once the mould has been made, a long series of identically similar cups can be produced from it without further creative work. And this brings us to a third phenomenon associated with the increasing complexity of appliances; which is a growing rigidity of method with a diminishing variability of the product. Whereas a hand tool, and, to a less extent, a

machine tool, may be used to produce an original work—that is, to give immediate concrete expression to the mental conceptions of the worker—a producing machine, having been prepared as above, can execute only a specific action and turn out only the product for which it has been prepared; which it does in an endless series of mechanical repetitions without the possibility of variation. It is, in the great majority of cases, a copying device pure and simple.

Yet another phenomenon which we may observe is the tendency, as appliances evolve, to a reversal of the relation of means to material. It has always been a canon of good craftsmanship that the limitations of material should be freely accepted and even made the medium of artistic expression. The means should be adjusted to the material and the product should express itself in terms of the two factors. And so the old craftsman worked. He used the means most convenient and appropriate to the material and frankly left his methods visible. The tough wood was cut with edged tools and the finished work showed the marks of adze or gouge. The plastic clay was moulded, the malleable and ductile iron hammered and drawn; and the pottery showed the spiral trace of the potters' thumb and the potters' wheel, while the iron-work spoke of the forge and the hammer.

With the development of more complex appliances the tendency is for the adjustments to proceed in the opposite direction. Instead of devising a means suitable to the material, the tendency is to seek a material suitable to the appliance; and the complex appliance tends to ignore the characteristics of material and leave these unexpressed in the product. Thus wood, which is relatively unsuitable for machine production, tends to be replaced by iron, which is peculiarly adapted to mechanical manufacture and which therefore tends largely to displace most other materials, notwithstanding its unsuitability in other respects. An enthusiastic American inventor has even proposed to make all household furniture of stamped steel and so to treat the surface that it shall look like inlaid wood. But apart from such intentional falsification, the finished products do not express either material or methods. An enamelled iron teapot might be of any material and shows no trace of the means by which it was produced; and equally undistinctive is a machine stamped violin belly or a stamped wood "carving."

In Chapter V. we have seen that the application of the Power Machine to a Machine Tool tends at once to establish a failure of co-ordination between the tool and its human attendant. The potential increase of speed on the part of the machine is practically unlimited: that of the man is strictly limited, so that the speed of the machine tends constantly to outrun that of the man. Moreover, since there is no actual connection between the man and the machine, synchronism between their actions can be maintained only by constant mental effort of the former; and when this momentarily fails, the associated action breaks down. Hence, as mechanical speed increases with successive improvements of the mechanism, it becomes necessary to replace the human attendant by a mechanical attachment which, being geared to the rest of the mechanism, moves with infallible synchronism. For instance, it would be useless to accelerate, by power, the movements of the headles of a loom if it were not possible to accelerate to a like degree the speed with which the shuttle is thrown; and as the latter is very strictly limited so long as the shuttle is thrown by hand, the efficiency of the power loom has as a necessary condition the incorporation of the moving shuttle in the body of the mechanism. Thus improvement in mechanism involves the progressive elimination of the human element and its replacement by automatic attachments.

We have also seen in Chapter V. that mechanism has its own laws of development which have no connection with human requirements and which are totally inflexible; whence it follows that when mechanism and man become associated, it is the more adaptable man who must adjust his actions to the less adaptable machine. If the services of the machine are required, they can be obtained only on terms made by the machine itself, which man must perforce accept.

It is this inflexibility of mechanism that produces the most striking reactions on the conditions of human life; which reactions are specially conspicuous in respect of industrial activities and their products.

In order the better to study these reactions it will be convenient to examine a particular case in some detail; to note the changes which occur when a handicraft becomes transformed into or replaced by a mechanical manufacture, and to observe the reactions set up at each stage of development. And in order to avoid misleading inferences, it will be well to select an instance in which the application of

mechanical methods of production is appropriate to the nature of the product.

We will take as our example the production of a book, limiting ourselves to the actual text and disregarding the binding, which appertains to a separate industry.

The crafts which represent the industry of the pre-power age fall into two groups; in one group, comprising the carpenter and joiner, the mason, the plasterer, the thatcher and dauber, the smith, the wheelwright, the tailor, the cordwainer, the scrivener, etc., the crafts were carried on entirely by means of simple hand tools; in the other group, which includes the turner, the potter, the weaver and the printer, the work was executed with the aid of certain mechanical appliances—the lathe, the potters' wheel, the loom and the printing-press—which were really of the nature of complex tools, but which we may conveniently call "simple machines" or "hand-machines." These again present essential differences; for whereas the foot-lathe, the potters' wheel and the hand-loom are tools proper and have their affinities with handicraft, executing merely with more precision and convenience processes previously carried out by hand; the printing-press was, from the beginning, essentially a machine. The art of printing was, from the first, an entirely different art from that of writing. It came into being, not as a modification of the scrivener's craft, but as an art *sui generis* which superseded it.

Our present comparison has therefore three terms:

1. The Handicraftsman.
2. The Simple or Hand-machine and
3. The Power Machine.

The Development of Book Production.

The Handicraftsman.—Up to the middle of the fifteenth century all books were, of course, written by hand. They were not, however, what is nowadays known as manuscript—that is, mere handwriting—but were executed by regular craftsmen, highly trained and of great skill. Of these there were two grades; Scriveners or writers proper, such as that Adam Scrivener who was apparently regularly employed by Chaucer and to whom the poet addresses his delightful "Words" of remonstrance; and Rubricators—artists who embellished the works of the scriveners with rubrications, coloured headlines, ornate initials and, in some cases,

miniatures. Naturally, with the rise of the art of printing these craftsmen tended to disappear, though it was still customary for the early printed books to receive their embellishments from the Rubricator; but, as in most of the ancient crafts, there has been a survival to meet those needs that the machine fails to supply. The scrivener survives in the utilitarian Law writer who engrosses important documents, and the Rubricator in those artists who execute illuminated addresses, Church service books and other volumes in which beauty rather than cost is the prime consideration.

The Hand Machine.—The Art or Craft of Printing is carried on at the present day, as it has been in the past, from the time of Caxton to that of William Morris, by means of the simple hand-press; which, excepting in detail, has undergone comparatively little change. The form most commonly in use is a modification of the eighteenth century "Stanhope Press," known as the "Albion," the construction of which will be best explained in connection with its use. The press is usually worked by not less than two men, but it is possible for the entire process to be carried out by one man; and for convenience in our comparison we will assume that only one man is employed.

The first operation of the hand-printer is the "composition" or setting of the type. In the first place it is set in a long frame called a "galley" which holds a single column about four pages long, and from this the first rough proofs ("slip proofs") are taken and the main corrections made. The corrected galley is then divided into pages of type which are arranged in their proper order in a frame—the "chase"—which, when it is filled with the type pages is called a "forme." The number of pages to a forme will vary with the format or make-up of the book; for a folio volume there will be two pages, for a quarto, four, for an octavo, eight, and so on; a forme in each case printing one side of a "sheet," which when folded for binding will constitute a "section" of the book.

The forme is now fixed on the bed of the press, which, in the type of machine we are considering, is a horizontal table travelling to and fro on rollers. Attached to this table is a hinged flap or lid—the "tympan"—on the inner surface of which the blank paper is laid. When the flap is let down it brings the paper into even contact with the type surface.

The type is first inked by the passage over it of the inking

roller; a sheet of paper is laid on the tympan, which falls, pressing the paper on the inked type. Then the bed is run back on its rollers, passing under a press which is forced down by a lever and by which the paper is squeezed firmly against the type; the beds travel forward again, the flap is lifted and the printed sheet removed. But this first proof will usually be very defective, showing "bald" patches and patches of excessive pressure. The surface of the type is not quite true and will require careful readjustment, a process—known as "making ready"—the progress of which has to be tested from time to time by the "pulling" of fresh proofs. When at last a proof is obtained which shows a perfectly even impression, the press is ready and the actual printing can begin. But before proceeding to the process of production we must take a glance at the third term of our comparison.

The Power-Machine.—Passing over the various intermediate forms of the printing press, such as the platen presses and cylinder machines of the Wharfedale type, we will take as our example the most advanced form—the Rotary Press—as exhibiting in the most typical manner the effects on industry of the employment of the Power Machine.

A rotary press is a large and complex machine and cannot be here described in detail. Essentially, it consists of two or more pairs of drums or cylinders with certain accessory appliances. One cylinder of each pair—the printing roller—has its surface covered with the type; the other—the "impression roller"—presses the paper against the type or printing roller. The accessories are, the ink-feed, a system of rollers which keep the printing rollers constantly inked; a damping appliance; an automatic cutter, which cuts the paper into sheets after it has been printed; the paper feed, a huge reel carrying a single web of paper about five miles in length and weighing about fourteen hundredweight; and an electric motor of a power proportionate to the size of the machine. The largest machines require two motors of 55 horse power each. There are various other accessories for special work—folders, counters, etc.—which do not concern us.

The operations involved in printing with the rotary press are more numerous and complex than in the case of the hand-machine, but they may be described in the same order. First comes the setting of the type, which will be done by means of a type-setting machine—probably a "Linotype": a wonderful mechanism which automatically casts solid lines

of type (whence the name) and is worked by means of a keyboard like that of a typewriter. The Linotype produces a single column of type—the galley—from which rough proofs are taken for correction. When corrected, the galley is cut up into pages and these are built up into a forme, as in the case of the hand-press. But at this point comes a change of method. Since it is obviously impossible to attach the forme to the printing roller, it becomes necessary to make a stereotype plate. First a "mould" is made by beating on to the forme of type sheets of a thick, spongy paper, known as "flong," by means of hard brushes. The paper mould—bearing an indented impression of the type—is dried and baked and then placed in a casting frame shaped to the curvature of the roller. Molten stereo metal is then poured in, and when this has solidified, a curved stereo plate is produced, on the convex side of which is a replica of the forme of type, and which exactly fits the printing roller to which it is to be fixed. By a repetition of this process, the printing roller is clothed with a surface of type; and when the parts of the machine and the printing and impression surfaces have been brought into adjustment and the paper led between the rollers, all is ready for the actual printing, or "machining" to begin.

Having thus sketched the two types of machine and the operations involved in working them, we are now in a position to compare them with the manual craftsman and with one another; a comparison which will bring out the general characteristics of the machine and its work and enable us presently to examine its reactions on human industry and the products thereof.

In comparing handicraft with machine production, we observe at the outset the very striking difference of method which has already been noted. In the case of the machine the actual production is preceded by preliminary processes of great complexity and elaborateness, which in all cases take up far more time than does the production itself and which become more lengthy and elaborate as the type of machine becomes more advanced and the actual production becomes more rapid, until, in the most advanced machines, the disproportion becomes absurd. Thus, in the case of *Lloyd's Weekly Newspaper*, whereas it takes a considerable number of men the best part of a week to prepare the machine for printing, the actual copies are printed at the rate of forty per second.

In the case of the craftsman, on the other hand, there are no preliminary processes at all. The scrivener has but to place his " copy " on the easel, lay a supply of suitable paper on his desk, fill his pen and begin. Within five minutes of his sitting down to work he has a portion of the volume completed.

This difference between the craftsman and the machine is of the most profound significance; it is, in fact, fundamental. The existence of the elaborate, lengthy, and therefore costly, preliminary processes is not only the cause of most of the peculiarities of machine production and machine products but also profoundly influences the character and conditions of life of the machine worker; while their non-existence in the case of handicraft gives a special character to the craftsman and his works. Let us consider the difference somewhat more closely and in relation to a specific product, which in this case may be a novel of 100,000 words—320 pages of about 300 words to a page—confining our attention to the production of the text and disregarding the materials and the binding. We will begin with the problem of time and cost, and we will first take the case of the handicraftsman.

A Law writer—the modern scrivener—writes, in a semi-cursive hand with paragraph headings, etc., in Gothic, 12 folios of 72 words each in one hour, that is 864 words per hour. An expert writer can do as many as 20 in an hour, but we will take 12 as an average output. Hence, in a day of eight hours he writes 6,912 words, and he would take to write the volume of 100,000 words which we have selected for comparison, 14½ or say, 14 of such working days. The usual rate of remuneration is two pence per folio, which works out at two shillings per hour or sixteen shillings per day; which brings the cost of our volume to £11 4s. If a second copy is required, the time expended and the cost entailed would be the same again. If an edition of 1,000 copies were required, the production of it would occupy the scrivener for 44 years, 45 weeks and 2 days, working six days a week and the cost of the edition—disregarding that of the paper—would be £11,200 (*i.e.* the cost of one copy multiplied by 1,000). Of course the volume could be completed in a single day by the joint work of fourteen scriveners at the same cost; and the edition of 1,000 copies could be produced by these fourteen scriveners in 3 years and 1 month at the same cost as that of the one man's work over the longer period, viz. £11,200.

The main fact which is exhibited by these figures is that in the work of the craftsman there is no "reduction on taking a quantity." Each completed work is the product of a certain series of actions, and the products can be multiplied only by a like multiplication of the productive actions.

Postponing the consideration of other aspects of handicraft let us now turn to the printer, in relation to the same factors —time and cost. Our investigation will begin with the machine craftsman, using a simple type of press such as the Albion, capable of being worked by one man; and we are assuming it to be so worked and that the process is one of manual work throughout.

The first proceeding is the composition or setting of the type. I will assume that our printer takes an hour to set one page of 300 words. A skilful compositor could do it a good deal more rapidly, but a page an hour is a good average for the whole volume. As there are 320 pages, the time taken for setting the volume will be 40 days of 8 hours. The type will now be in "galleys" or single columns about two feet long, and from these the "slip" proofs will be "pulled" and submitted to the reader (who, in this case, will be the printer) and the author, for correction, the errors detected being made good on the galleys. The next proceeding will be to divide the latter into pages and to arrange them in the chase so as to produce a forme of eight pages, which will print one side of a sheet of our volume—for the printer's convenience we will select a small size, say foolscap octavo, having a page $6\frac{3}{4}$ inches by $4\frac{1}{4}$.

The type being now arranged in the formes, each page will require to be numbered and furnished with its headline and the chapter-headings and tail-pieces—if there are any—added. Then page-proofs will be pulled, page corrections made and finally each forme will have to be "made ready" on the press before taking the impressions. We need not time these various processes separately. Taking them as a group, we may assume that they will occupy another 40 days, which will bring the time taken up by the preparatory processes to 80 days, and their cost at 16s. per day to £64

We now come to the actual printing. The press being "made ready," the time occupied in taking a single impression of one side of a foolscap octavo sheet will be about two minutes, which will include the inking of the type (with a hand roller in this class of press); and as there will be forty such impressions in a volume of 320 pages, the time required

for the printing of one copy of our specimen book will be 1 hour and 20 minutes, and the cost of the operation two shillings and eightpence.

Here let us pause to summarize the processes and to compare them with those of the scrivener. It will be seen that the preliminary processes—composing, proving and correcting, making up the formes and making ready—have taken up eighty days. It will also be seen that, while the printer has been getting ready to print, the scrivener has completed five volumes and is nearing the end of the sixth. In the production, therefore, of a single copy, the hand-craftsman is immensely superior to the machine-craftsman in respect of speed. But he is equally superior in respect of cost; for, assuming the printer to be paid at the same rate as the scrivener (he would probably be paid more being a master printer and the owner of the machine), the first copy will have cost £64 2s. 8d. as against £11 4s. for the written copy. But after the first copy, the machine begins rapidly to overtake the craftsman since the printing of each copy occupies only 1 hour and 20 minutes and costs—disregarding material and cost of plant—only 2s. 8d., whereas each written copy consumes fourteen days and costs £11 4s. By the sixth copy the machine will have passed the craftsman, for whereas the six written copies will have consumed eighty-four days and cost £67 4s., the six printed copies will have consumed 80 days 5 hours and 20 minutes and cost £64 10s. 8d. Thereafter the craftsman is out of the race both as to time and cost. For whereas the production of 100 copies will occupy 4 years, 25 weeks and 2 days and cost £1,120, the production of 100 printed copies will occupy only 96 days, 5 hours and 20 minutes and cost but £77 6s. 8d. while the production of 1,000 printed copies will take 246 days, 5 hours and 20 minutes and cost £197 6s. 8d. or 3s. 11½d. each, whereas a similar edition of hand-written copies would take 44 years and 45 weeks to execute and would cost £11,200 or £11 4s. per copy.

We now come to the Power Machine; and here as the data are rather more involved and less easy to obtain, we shall have to depend on somewhat rough estimates; which, however, will sufficiently well serve the purpose of our comparison.

There is no need to follow in detail the various processes; which are substantially similar to those carried out by the hand-printer. Type-setting by the Linotype or Monotype

machine, together with the necessary reading of proofs, correcting, making-up into formes, pulling and correcting page-proofs, etc., will occupy about 400 hours or 50 days of 8 hours. The making of the paper moulds and the casting and mounting of the stereotype plates will take about 120 hours, or 15 days, and the "making-ready" 250 hours or 31 days. So that the entire set of preparatory processes which will have to be completed before the machine is ready to print will occupy 96 days. We are here assuming the work to be done by one man. Of course, in practice it would be divided up among a number; but as our comparison is made in terms of the "man-hour" this division of labour need not be considered.

The actual printing proceeds at enormous speed. The great Hoe machine with which *Lloyd's Weekly News* is produced, prints copies of thirty-two large pages at the rate of 50,000 per hour; and each copy of a large newspaper will contain at least as much printed matter as our volume. A book, however, cannot be printed at this very high speed. If we assume that our volume could be printed by the rotary machine at the rate of 5,000 copies per hour, we shall make a moderate estimate and avoid straining our comparison.

Turning the above data into a statement of costs, we find that the preliminary processes have occupied 96 days. This at 16s. per day represents £76 16s. As to the actual printing, or "machining," its cost is almost negligible until we come to long runs. The cost (in labour only which is all we have considered hitherto) of 5,000 copies is one hour's pay for the two men who could manage the machine, *i.e.* 4s.; while that of 1,000 copies would be a fifth of this, viz. 1s. 7¼d.

It is obvious, however, that this is not the real cost. In the case both of the hand-press and the rotary, there are charges representing interest on the capital cost of the appliances and premises. These will be considered later; but in order to make our comparison reasonably approximate it is necessary to note them here. The plant of the hand printer—press and accessories, founts of type, fittings, etc.—will cost from £400 to £500 and his premises may be capitalized at another £500, making a rough total of £1,000. This, at 5%, will levy a charge of about £1 per week, which must be added to the cost of production. The plant of the power printer is, of course, much more costly. The Rotary Press will cost from £10,000 to £15,000 according to its size. The Linotype machine costs £1,000, while the special pre-

mises and various accessories represent a further large cost.* If we assume a daily charge of £3 in respect of interest on capital, we shall probably be well within the mark.

The comparison of the three methods of production may be made clearer if the data are set forth in a tabular form, thus:

1. The Handicraftsman.

A. Time.

Time required	
For preliminary processes	none.
To write one volume of 100,000 words	14 days.
To write 100 copies	4 yrs. 25 wks. 2 days.
To write 1,000 copies	44 yrs. 45 wks. 2 days.

B. Cost.

Cost of	
Preliminary processes	nil.
One volume	£11 4s.
100 copies	£1,120
1,000 copies	£11,200

2. The Hand Machine.

A. Time.

Time taken by	
Preliminary processes	80 days.
Printing one copy	1 hr. 20 mins.
Production of the first copy	80 days 1 hr. 20 mins.
Production of the first 100 copies	96 days 5 hrs. 20 mins.
Production of the first 1,000 copies	246 days 5 hrs. 20 mins.

B. Cost.

Cost of	£ s. d.		£ s. d.
Preliminary processes	64 0 0	+ £13 interest =	77 0 0
Printing one copy	2 8		
Production of first copy	64 2 8	+ £13 ,, =	77 2 8
Production of 100 copies	77 6 8	+ £16 ,, =	93 6 8
Production of 1,000 copies	197 6 8	+ £41 ,, =	238 6 8

* For obvious reasons I adhere to pre-war prices.

3. The Power Machine.

A. Time.

Time taken by	
Preliminary processes	96 days.
Printing one copy	$\frac{3}{4}$ sec. (0·72 sec.).
Producing the first copy ..	96 days, $\frac{3}{4}$ sec.
Producing the first 100 copies ..	96 ,, 72 ,,
Producing the first 1,000 copies	96 ,, 720 ,,

B. Cost.

Cost of	£	s.	d.		£	s.	d.
Preliminary processes	76	16	0	+ £288 interest =	364	16	0
Printing one copy about				$\frac{1}{100}$ of a penny.			
Producing the first copy	76	16	0	+ £291 interest =	367	16	0
Producing the first 100 copies ..	76	16	1	+ £291 ,, =	367	16	1
Producing the first 1,000 copies	76	16	10	+ £291 ,, =	367	16	10
Producing the first 5,000 copies	77	0	0	+ £291 ,, =	368	0	0

An inspection of the above tabular statement brings out very clearly the truth of what has been said with reference to the tendency of the preliminary processes to increase in relative length and complexity as appliances become more developed and production becomes more rapid. In the case of the handicraftsman there are no preliminary processes; in that of the hand machine the time taken by these processes is to the time taken by printing one copy of the volume as 480 is to 1; while in the case of the power machine, the ratio is as 3,686,400 to 1. And, of course, the same relation exists in respect of cost.

Factors other than Time and Ctos.

Hitherto our comparison has been made exclusively in terms of speed and cost of production; and it has shown that in these respects the machine is immeasurably superior to the handicraftsman, and the power machine immeasurably superior to the hand machine. The factors of time and cost, of speed and cheapness, however, although they occupy almost exclusively the manufacturer's field of vision, are not

the only ones. Let us now consider some of the others. And first let us compare the qualities of the respective products, disregarding the time and cost of production.

As to general efficiency the craftsman's product stands easily first. It is conceived in terms of human requirements, and no other considerations enter into its production. It is a unique work and can be adjusted perfectly to the needs of the particular consumer. The text can be adapted to his eyesight, the size, format and style to his special requirements and tastes, and the work carried out in accordance with his instructions. Drawings, water-colour paintings, etchings, maps and even photographs can be not only bound with the volume but incorporated in the text, if of suitable size; or the size can be modified for the purpose. But none of these adaptations is possible in the case even of a hand-printed book. In a consecutive series of volumes, the craftsman can execute each copy in a different style, or each volume may be a different work and this without any increase in the time and cost of production; whereas the printed volumes must necessarily be mechanical repetitions of one another, any variation involving fresh preliminary processes, with retardation of production and increase of cost, in the case of the hand machine, and being in the case of the power machine practically impossible. Again, in the production of any given copy, the craftsman can introduce variety of treatment without extra time or cost. He can rubricate head lines or special passages or introduce coloured initials by merely changing his pen and filling from another inkpot, and can vary the style of text from fine italic to heavy black-letter or large capitals by using variously cut pens. In the case of the hand-press these variations are difficult and costly: varying styles involve additional founts of type, and rubrication and coloured lettering involve additional preliminary processes and printings at a usually prohibitive increase of time and cost. In the case of the power machine, with mechanical composition, variations of style and colour are practically impossible.

Thus in elasticity of production and in adaptation to human requirements, the craftsman's work is markedly superior to the product of the hand machine and incomparably superior to that of the power machine.

In respect of durability the work of the hand craftsman is again immensely superior to that of the machine. This, it may be objected, is not a necessary condition; and theo

retically it is not. A hand-press could be fed with hot-pressed Whatman. But it would not be; and a rotary press could not be, since a condition of its speed is the huge spool of machine-made paper, miles in length. In practice the conditions are as stated, and the relation between craftsmanship and material is a real and rational one. A craftsman is naturally fastidious in respect of material on which he is going to expend great labour and skill, and the more so since he is personally responsible for the quality of the finished product. And so we find it to be. The old Cremonese fiddlemaker would scarcely deign to look at a log of sycamore that had had less than a half-century's seasoning. Compare this attitude with that of the German violin manufacturer who, with metal dies stamps his fiddles by the thousand out of steamed green wood, blows them together, bakes them brown in an oven (to give the "antique finish") and sells them—or, at least, used to sell them—to the British importer at 1s. 6d. each, or even less.* Then look at the mahogany used by Chippendale, Shearer, Hepplewhite and their contemporaries, or the pear-wood, lime or oak of Grinling Gibbons; at the "paste" of a Ming jar or the "body" of an Elers teapot; at the panels and gesso grounds of the old masters or the carefully-matured primings of a modern painter. But it is needless to multiply instances. The rule is universal, and, as I have said, natural and rational, that a craftsman will not waste good work on bad material. Moreover there is a natural relation between the cost of work and the cost of material. Our specimen volume costs £11 4s. to write; obviously it would be absurd to save a few pence by using inferior paper. But to print a copy on the hand-press costs but 3s. 11¼d. if the edition is 1,000 copies, and the paper becomes a considerable factor in the final cost; while in the case of a 100,000 edition run off a great rotary the cost per copy would be less than ¼d., in which case the expenditure of an extra penny on the paper would much more than double the cost of production. And so in practice we find that the transition from hand production to machine production and from the simple machine to

* In the writer's childhood there used to be sung a song beginning,

"When I was young and had no sense
I bought a fiddle for eighteen pence."

The writer of that song must have had a prophetic vision of a German factory-made violin.

the power machine is accompanied by a progressive and proportionate deterioration in the quality of the material. The hand-papermaker uses the best linen rags; the great paper-making machines use the worst wood pulp; and so with all manufacturers.

In our present example—the unbound book—quality of material is the only factor of durability. But in most manufactures it is otherwise. The durability of a hand-made book-binding is due, not only to the superior material used but also to the quality of the craftsman's work; while the least durable bindings are those produced in thousands by the most perfect and " up-to-date " power machines. And the same is true of furniture, paper, textiles, boots and the majority of manufactures in which the power machine has displaced the craftsman.

The last of the characters of the product which we shall notice is Beauty; and here, in our present example, the contrast is less marked. For our written book is no Book of Kells, or even a masterpiece of modern calligraphy; it is a utilitarian product, written by a simple scrivener, with no enrichments beyond its rubrications, coloured initials and pen flourishes. Nevertheless, in beauty, and especially in interest, it will hold its own even with the ornate Kelmscott books or the more restrained masterpieces from the Doves Press, while to the products of the high-speed power press its superiority in an æsthetic sense will be out of all comparison.

But in respect of beauty the present comparison is a little misleading. Printing, as I have remarked, is a separate art and not a mechanical imitation of a handicraft, as are most machine manufactures, and its products have a character and beauty of their own which is not completely comparable to that of the scrivener's work. The hand-printer at his best, as in the case of William Morris, is properly a craftsman who uses his machine as a tool. And if we compare his work with that of power-driven presses, we find a steady, progressive deterioration of product running concurrently with the increasing perfection of the machine, until, in the high-speed newspaper press we reach at once the most perfect and ingenious mechanism and the most debased and unlovely product. And a similar progression is to be noted in most other industries—in all industries, in fact, with the possible exception of those by which machines themselves are produced. Textiles, paper, pottery, wood work, metal work,

glass, book-binding, clothing; all conform to the rule that the most beautiful products are those of the hand craftsman, the least beautiful those produced by the most advanced mechanism.

Before turning from the product to the producer we may pause to take a glance at the instruments or apparatus of production. And here we shall find another important and significant progression.

The apparatus of the scrivener consists of a rough table or desk, a supply of paper—though this is really material—an assortment of quills and reeds, or cheap penholders, to be cut to a chisel-shape for writing capitals, a penknife, a few bottles of ink, a dozen inkpots, a straight-edge, perhaps a drawing-board, a few pencils and a paper-knife. The whole outfit could be bought for a sovereign, and, with the exception of the table, would go into a hand-bag.

The apparatus of the hand-printer will include the press and its accessories, type-cases, numerous founts of type, inking table, rollers, etc., the cost of which will be little short of £500, to which must be added the workshop in which the plant is accommodated. Here, then, counting the plant alone, we have a capital outlay of £500, which, with wear and depreciation, will levy a charge on the industry of not less than £50 per annum, which, of course, has to be added to the cost of production.

When we come to the great power machine we have to deal with a gigantic and costly plant. There is the machine itself with its accessories, including the composing machine, the apparatus involved in stereotyping, the engine to furnish the motive power to the electric motors, and heavy transport appliances to deal with the ponderous material and products. There are also buildings of large size and special construction with chimney-shafts and other expensive adjuncts. Altogether the capital outlay will not be less than £50,000, which with interest at 5% and wear and depreciation will represent an annual charge of not less than £5,000 to be added to the cost of production; a charge, it is to be noted, most of which goes on whether the machines are running or not.

Turning now to the consideration of the direct effects of the different methods of production on the workers engaged, we observe once more a progressively unfavourable series of conditions. To begin with the scrivener, it is at once obvious that his work exercises a minimum of interference with his personal liberty and imposes a minimum of restric-

tions. He can work in his own home—in the family living-room if he pleases. In the summer, he can work in the garden, or take his little outfit farther afield. In respect of the actual work, apart from business appointments, he is bound to no locality but can ply his craft in a seaside cottage or even in a tent or caravan. He can make his own arrangements as to hours of labour; can provide the means for a holiday by working overtime, or earn a free afternoon by early rising. And he reaps the direct reward of any additional effort at increased output, and can if he chooses purchase an increase of leisure by accepting reduced earnings.

The hand-printer, if a master craftsman working his own press, enjoys much of the freedom of the scrivener. But the ponderous, immobile nature of his appliances imposes certain restrictions. He has a fairly free choice of the locality in which to establish his printing-house, which can be placed on the outskirts of a town or even in a village; and the workshop can be attached to his dwelling-house, with an outlook on the garden or across the fields. But when once he has chosed his locality he is committed to it permanently. His press is a fixture, and he is bound immovably to the press; otherwise he is free; free to fix his hours of labour and leisure, the times of his meals and the length of his working day.

When we come to the worker on the power machine, the conditions are totally different. The machine is the master, an autocrat which dictates the terms on which the industry shall be conducted, while the worker is but one of a large band of attendant slaves. The starting of the engine, heralded by the peremptory summons of the factory hooter, determines the commencement of the day's work. Thereupon the slaves must assemble, punctual to the minute, fall to—not at their own pace but at that of the machine—and throughout their allotted hours of work, labour without a moment's intermission and with unflagging attention—for the machine runs blindly on, unheedful of its own mistakes or those of its attendant slaves—until the unmelodious hooter proclaims a respite. The life of the factory worker is ordered in all its details by the needs of the machine. The hour at which he rises, the time, and often the place, at which he takes his meals, the duration of those meals and to a great extent their nature; all are determined by the machine with no regard to his needs or convenience. And since the great machine, even though standing idle,

incessantly devours the interest on its huge capital cost, it must be kept running night and day, from Monday morning to Saturday night, and even its week-end rest must be occupied in cleaning and repairs.

To these restrictions on the disposal of the worker's time are added restrictions equally stringent as to locality. He is necessarily fixed immovably to the factory, and the position of the factory is determined by the needs of the machine. It must be near a railway, and preferably also to water transport. In practice it is situated in an industrial town; for if the factory is not established in a town, then a town grows up around the factory; and the type of town which grows up around a factory is of all kinds the least desirable.

Nor are the conditions under which the actual work is carried on more favourable. Whereas the scrivener works in comfort in his home, in the company of his family if he chooses; and the hand-printer in his workshop which he can have arranged to suit his tastes and desires; the "hand" at the power printing works labours in a building designed to meet mechanical, not human requirements, in an atmosphere created for and by the machine, surrounded by mechanism in unresting motion and enveloped in unceasing clatter and noise.

From the conditions of the industry we may now pass to the character of the worker; and here, once again, the transition from the handicraftsman to the attendant on the Power Machine is effected on a descending scale.

The scrivener is a man of skill; not necessarily of great skill, for if he can do no more than write a plain text with flourished capitals and initials he is but a simple craftsman. And this is all that we have asked of him. Nevertheless he is a master craftsman. The book that he has produced is his personal work from beginning to end. From the general design down to the smallest detail of execution it is the product of his mind and of his hand, and he is entitled to add a colophon claiming it as his. And this is the essential quality of craftsmanship; the power to turn out a complete work; to transform mere material into a finished commodity.

The hand-printer is in much the same position as the scrivener for he, too, is a craftsman. The book which he has printed is his own work, to which he is entitled to append his colophon or his personal mark as did his forerunners, Caxton and Wynkyn de Worde. But though he is truly

the maker of the printed volume, his personal control over its character is notably less than that of the handicraftsman. He may arrange the text, but the lettering is that of the type with which the founder supplies him (unless he is a master craftsman like William Morris who designed his own type; but then he would be comparable not to a simple scrivener, but to an artist calligrapher) and the finished volume may well owe much of its excellence to the type-designer, who thus becomes part producer of the work. Moreover, the printer's skill is of a lower order than the scrivener's; it is not creative; it has less direct effect on the quality of the work; it consists rather in knowledge, judgment, quickness of sight and rapid manipulating. Such manual skill as he possesses is productive principally of increased speed.

When we come to the Power Printer we find that all personal connection of the worker with the product has practically ceased. The book is the work of the machine, aided by a staff of attendants, some of whom never even see it, while to most it is no more than a travelling web of paper, now blank, now printed, rushing past them to vanish from their ken at the end of the machine. The finished work is a joint production in which all—linotypists and compositors, moulders, casters, machinists, minders, cleaners, engine-drivers, stokers, have taken their part. Such design as it has was born in the office of another worker who takes no part in the actual production.

Thus each of the hands by whose combined activities the machine is enabled to turn out its product, is engaged, not in creating books but in "doing a job," and doing it over and over again, day after day for months or years. One, for instance, is engaged in beating the "flong" (or mould paper) on to the formes of type. What those pages of type set forth is no concern of his. His business is to beat the flong down evenly and get a perfect mould. So with the man who manages the ink feed or the stoker who charges the furnace. Neither is concerned with the character or quality of the book that is printing but only with the maintenance of certain conditions in the machine.

The staff of a Power Printing house is thus seen to be composed of men, many of whom hardly rise above the level of unskilled labourers and none of whom is possessed of skill comparable to that of the handicraftsman. The activities of each move in a small ambit, and what passes for skill is merely the capacity for performing a short series of actions

with a speed and facility born of incessant repetition. None of them possess any power of real production—the capacity to transform material into finished commodities; and the work, though strenuous and often exhausting, neither calls for the exercise of appreciable intelligence nor rewards the expended effort with that interest and pleasure which the craftsman feels in the creation of an individual work.

Many of the reactions or less direct effects of mechanism on industry and its products will have been noted by the reader in the course of our examination of its direct effects; but before proceeding to the consideration of the less direct and more general of these reactions, it may be useful to summarize the results already obtained.

Our detailed examination has shown that the increasing complexity and power of the appliances of production represent an adjustment of which the purpose is the attainment of greater speed of production with resulting increase of quantity and diminished cost. And in this respect, increasing complexity has carried with it increasing efficiency. The hand machine is more efficient than the craftsman; the power machine is incomparably more efficient than the hand machine. But in all other respects, the order of efficiency is reversed. The craftsman is more efficient than the hand machine and incomparably more efficient than the power machine. In elasticity of production and adaptation to human requirements, in durability and beauty of the product, the craftsman leads, the hand machine comes next, and the power machine lags far in the rear; and every advance in the power and complexity of the machine marks a further stage in the degradation of the product.

And as with the products of industry, so it is with industry itself, expressed in human terms; of the workers employed, the craftsman is the highest type, the power-machine worker the lowest. The life of the former is worth living and the work he does is worth doing; the latter lives a life so little desirable that he is in open revolt against its inhuman conditions; and how much his work is worth doing may be judged not only by its monotonous, uninteresting character, but by the fact that its purpose is to assist in the production of commodities inferior in all respects but cheapness to any ever before produced.

More Remote Reactions.

From the foregoing examination of the more immediate reactions of mechanism on industry and its products the reader will have already gathered most of the more obvious remote reactions. These, however, we may now consider in somewhat more detail.

1. The most striking characteristic of the Power Machine is its gigantic output; and this—the rapid production of vast quantities of commodities—is usually assumed to be its purpose. And certainly this purpose is in the mind of the manufacturer when he replaces his old plant by one of a newer type. But if we look at the genesis of the present form of Power Machine, we see that the principle laid down in Chapter V. applies here, too; that the machine, from its early, experimental form has developed along the lines of mechanical evolution without any appreciable adaptation to human requirements, and that its growth has, on the contrary, been accompanied by an adaptation of man and human life to the conditions laid down by the machine.

Certain economists appear to overlook the fact that before the advent of the Power Machine the population of the world —or at least of the civilized world—was adequately supplied with commodities. The population was composed of consumers, but the immense majority of men were also porducers. Growth of the population affected both classes and did not tend to disturb the ratio of consumers to producers. By handicraft (including agriculture) the wants of men were supplied; in handicraft the great majority of men were engaged. And under these conditions the laws of supply and demand were fully operative. The adaptable handworker adjusted his output to existing needs, very commonly to the needs of particular individuals. The shoemaker did not make shoes in general terms, but he made them for specific persons; and so with the tailor and usually with the furniture maker and the carpenter and even with the weaver and the potter; the craftsman adapted his production often to personal needs but nearly always to an existing demand.

Into this set of conditions was born the Power Machine; and at once a change set in. There appeared in the world of production a new character. A type of man who had hitherto dealt as a middleman in commodities produced by others, now embarked as a producer of the commodities in which he dealt. By him the costly Power Machine was set

up and a staff of workers assembled to collaborate with it. His immediate purpose was to supply the demand which had hitherto been supplied by the craftsman, and to undersell the latter by means of rapid production. And this purpose he soon achieved, ousting the craftsman and capturing his profits.

But the machine, having come into existence, proceeded to develop in accordance with its own laws of evolution, regardless of the needs or convenience of man. And its development was, and is always, along the lines of increased speed and power. Its function was to produce rapidly; and as it developed, it continually increased in efficiency—of rapid production, with corresponding decrease of efficiency in elasticity and adaptability, which were not its mechanical functions. Very soon it had supplied the original demand and ousted the craftsman. But still it continued to develop. Its function was not to supply a demand; it was to produce rapidly. And it produced rapidly, and still more rapidly, and so it continues, and will continue to pour out its products with ever-increasing speed and in ever-increasing quantity. And in its victorious march it drags the manufacturer at its chariot wheels; for each advance in mechanism enables the up-to-date producer who adopts it, to undersell other producers who have only the out-of-date forms; who, in self-defence, must needs, in their turn, adopt the new machine. And so production continues to increase, not in response to any demand, but under the compulsion of mechanical evolution.

One result of this tyranny of mechanism is that the relations of supply and demand tend to become inverted. Under the régime of hand production, the problem was to supply consumers with commodities. The problem is now how to supply commodities with consumers. At first, the excess of production over consumption was fairly easily met by export. But export, as a means of disposing of the surplus of over-production, has obviously only a temporary existence; since the potentialities of mechanical development—with accompanying increase of over-production—are apparently infinite, while the possibility of increase of consumption is limited. Actually, as we shall see in the next chapter, export of the surplus of over-production is already doomed.

But it is not only the efficiency of the machine which tends to cause an excessive output. The inefficiencies which it develops along with its efficiency, may force the manufacturer into over-production. Its efficiency is, as

we have said, speed. Among its inefficiencies are the lengthy and elaborate—and therefore costly—preliminary processes which precede the actual production; the length and elaborateness of which tend to increase with each advance in power and speed. To observe the influence of these defects in determining over-production, let us take an illustrative case. Let us assume that a publishing printer has an actual demand for 5,000 copies of a certain book at 6d. per copy. And let us assume that his machine will print 5,000 copies per hour; that the preliminary processes cost £100 and that the "machining"—the actual running of the machine costs £10 per hour. (These, of course, are only diagrammatic figures.) Then the production of the 5,000 copies will cost £110; their sale at 6d. each will realize £125; leaving a profit of £15.

But supposing our printer, dissatisfied with this small profit, decides to print ten times the number; let us see what effect this will have on the cost and the profit. The cost of the preliminary processes remains the same—£100; the cost of printing 50,000 copies—10 hours at £10 an hour—is £100. Total cost of the issue, £200. Thus, while the cost of producing 5,000 copies is £110 or £22 per thousand, the cost of producing 50,000 is only £200 or £4 per thousand, obviously a much more profitable proceeding—provided that the manufacturer can sell the surplus 45,000 copies. As the demand is only for 5,000 copies, the surplus will have to be forced on the market, and this can be done only by offering them at a greatly reduced price. And here let us note the interesting fact that it will not only pay the manufacturer to sell the surplus at cost price, but it will actually pay him, and pay him well, to sell them at a considerable loss. Thus, supposing he carries out his original contract of 5,000 at 6d. per copy and jobs off the remainder at a third below the cost of production: the cost of the whole edition is £200 or £4 per thousand; the cost of 45,000 is £180, of which two-thirds is £120, the price for which he is going to sell the surplus. Then the transaction will stand thus:

Sale of 5,000 copies at 6d. per copy	..	£125
Sale of remainder at one-third below cost	..	120
		245
Total cost of production	.. .. ..	200
Profit	.. ..	£45

Thus, whereas the profit on the production and sale of 5,000 copies was only £15, the profit on the production of 50,000 copies, of which nine-tenths are sold below cost price, is £45. The sale of the bulk at a loss has resulted in trebling the profit.

It is unnecessary to remark that the sale of the remainder at cost price—a little less than a penny each—would increase the profit further; while if the manufacturer were able to throw the whole edition on the market at half the original price, the profit would be still larger.

Thus:

A.

Sale of 5,000 at 6d. per copy	£125
Cost of production of 5,000 copies	110
Profit	£15

B.

Sale of 5,000 copies at 6d. per copy ..	£125
Sale of 45,000 copies at cost price	180
	£305
Cost of production of 50,000 copies	200
Profit	£105

or seven times the profit shown in A.

C.

Sale of 50,000 copies at 3d. each	£625
Cost of production	200
Profit	£425

or 28⅓ times the profit shown in A.

We thus see that the manufacturer's profits rise in an enormous and disproportionate ratio with the quantity produced; that his profits are dependent on the bulk of the commodities produced—provided only that he can sell them. This is his problem. Over the actual production he has virtually no control. The machine lays down the conditions. It can produce so much. That is its output. It is for him to dispose of that output as best he can or be undersold by some other producer. And the only way in which he can sell commodities for which there is no real demand is by

lowering the price until consumers are tempted by sheer cheapness to buy things of which they have no real need. This is what manufacturers mean when they say that "supply creates demand." It does not; but excessive cheapness will induce unnecessary buying. A good instance is that of matches. Before the war these could be bought in unlimited quantities for three-halfpence per dozen boxes. They were not wanted; but they were bought—and wasted. The whole system of "dumping" is economically bad. It involves a vast waste of material, and, as we shall see later, an immense misapplication of labour.

Debasement of Products.

We thus see that the manufacturer is forced by the laws of mechanical evolution to produce gigantic quantities of commodities. These he can dispose of only on condition of excessive cheapness. But a low selling price involves the necessity of low cost of production; and an indispensable condition of low cost of production is low cost of material. But low cost of material necessarily involves debasement of the quality of the products—already debased by the inferior workmanship of the machine; for the function of the machine is to produce rapidly, not to produce well. And this debasement of products is a notable feature of machine production. Its degrees varies greatly in different industries and is usually most marked in cases where machine production has replaced the work of highly skilled craftsmen. It is well seen in the case of our selected example, the book. The old hand-printer used a paper composed of linen rag, made carefully by hand in wire moulds. But a modern high speed press devours paper by the mile. To supply its demands, paper-makers have searched frantically in all directions for available material. Cotton, esparto, jute, straw, bamboo, megasse and all sorts of vegetable fibre have been pressed into the service, and still the press continued to roar for more; and now it is wood that supplies the bulk of the material, and whole tracts of forests are being laid waste to feed the press. And there is not time for the relatively slow production of "chemical wood" pulp. The logs are just ground into powder by power-driven grindstones, and the paper produced from this by a fast-running paper machine of the Fourdrinier type is, in effect, a vast sheet of agglutinated saw-dust. The fastest type of machine can produce a web

ten feet wide at about seven miles an hour; and it is incomparably the worst paper ever produced. If a careless reader turns down the corner of a leaf, that corner falls off. Books composed of it will hardly bear sewing and the leaves very soon break off at the folds.

This debasement of the products of industry is, as we have seen, a secondary result of the continuous advance in mechanical knowledge. But it is greatly accentuated by the character of the manufacturer, who is himself a product of advanced mechanism. The craftsman has an inherent dislike to bad material, which robs his labour of its result: and he feels an interest in his work, a pride in its quality and perfection, because it is his own, and its excellence is a testimony to his ability and skill. All individual workers have this feeling. The doctor wishes to cure his patient, not from philanthropic reasons but for the satisfaction of succeeding. An uncured patient is a failure and a reproach to his skill. The lawyer exerts himself to win his client's case, not from benevolence but for his own credit. The thriftiest painter will not economize in colours, canvas or paper, for, though he has sold his pictures, he would feel it as a personal misfortune if they should crack or fade. The horologer follows with affectionate interest the life history of the chronometer that he has made; and even the boot-maker will offer tender enquiries after the boots that his labour has created.

With the manufacturer the case is usually quite different. He is not of the craftsman type. He does not personally make anything. He is by nature a dealer—a dealer in material and human labour. His skill is not that of the producer but of the vendor; his function is not to make, but to sell. He is an organizer, skilled in the management of aggregates of men, in the manipulation of markets, in the conduct of large commercial operations. As to the commodities that issue from his factories, they are but the counters or pieces in a purely financial transaction. He is indifferent to their quality so long as they fulfil their commercial function, and the limit of their badness is the limit of the consumer's tolerance; which is not easily reached, since the purchaser can buy only that which is offered for sale.

And it is not the manufacturer alone whose character thus reacts unfavourably on the products of industry; the middleman, and especially the wholesale "buyer," tend to be

equally engrossed in the financial aspects of commerce, and equally indifferent to the quality of commodities. It is customary to disparage public taste; but seeing that the nature of manufactured goods is settled before they ever reach the retailer, it is difficult to see what choice the public can exercise.

The diminished durability of the debased commodities produced by machinery has already been noticed. That this cancels to a considerable extent the reduction in price is sufficiently obvious, as is also the fact that it is a condition favourable to over-production. A copy of "Roderick Random," which I purchased at a book-stall, bears the date 1824 and the original price, 5s.—which, considering that the book contains 214,000, words, is not so much above the price of the cheapest bound novels of the present day. It is printed on good rag paper, still sound and undiscoloured, and remains serviceable after nearly a century of usage such as would have resolved its modern equivalent into its native saw-dust. It is evident that if the machine produced books of such durability as this, its rapid output would to a considerable extent become functionless by reason of ever-increasing accumulations. And with other commodities the contrast is even more marked. Factory-made textiles come and go, but the hand-woven Harris tweed goes on for ever; factory furniture sinks to the grave with by no means unperceived decay, while sturdy survivors from the eighteenth century live on into an honourable old age; and that, now rare product, the hand-made boot, will outlive a whole dynasty of its machine-made competitors. And while diminished durability thus robs the consumer of a part of the advantage of low initial cost, and creates a demand for fresh supplies, the absence of the other qualities of hand-made commodities—beauty, convenience, comfort and adaptation to personal requirements—tend to be entirely sacrificed.

Another of the secondary effects of high-speed machine production is the growing importance of the distributor. Under the régime of the craftsman the tendency was for commodities to be produced in the areas of consumption and in quantities suited to the supply of a local demand. Exceptions occurred in industries such as that of the potter which were dependent on locally available material; though even with these, there were few districts that were not able to supply their ordinary requirements. Evidence of this

is to be found not only in the former existence of multitudes of small potteries and other industries, but also in the close agreement of old buildings with the geological formations of the districts in which they stand; limestone, granite or sandstone regions exhibiting their appropriate stone architecture, chalk districts their buildings of flint, and wooded clay districts their houses of timber and plaster and later of brick.

But with the arrival of the great factory, the economic connection between a district and its products to a great extent lapsed. The production was on a scale unadjusted to any local demand. The area of consumption was now the entire country, and presently spread to the whole world, with the result that the disposal of the products became an industry in itself. The consumer was supplied by the retailer, who was supplied by the distributor, who was supplied by the manufacturer. This is the arrangement which principally obtains at the present time, and its chief characteristic is its almost complete lack of co-ordination between the consumer and the producer. The nature of the commodities supplied to a given district is controlled by the distributor; who also, in concert with the manufacturer, decides on the character of the commodities produced by the latter, leaving practically no choice either to the retailer or the consumer.

The above arrangement, however, is obviously not final; a process of integration and centralization is already in active operation. We have seen that the chief skill of the manufacturer is expended on getting rid of his products. But this is also the function of the distributor. What more natural than that he should produce the goods that he distributes? And if he manufactures and distributes, why not be his own retailer, too, and secure the whole profit and the complete control of the industry? And this appears to be the tendency of commercial evolution, though it usually works in the reverse direction. An enterprising retailer establishes branch shops, the multiplication of which enables him to become his own wholesaler. Later he sets up a factory, the products of which he can "plant" on the market at the full retail price; and if he has pretty complete possession of the retail trade of a district, within that district he can exercise a virtual monopoly. He can produce what he pleases, with the security of being able to sell it undisturbed by competition.

It has been shown that the above changes in the character of industry and its products are due to the elaborate and costly preliminary processes by which production on high-speed machines is preceded; and that cheap production is dependent on the production of large quantities at a single operation. Now it is obvious that the articles thus turned out in a "long run" must necessarily be all alike; each must be a mechanical repetition of all the others since it is produced by the recurrence of a cycle of action. Here the machine differs fundamentally from the craftsman, who can, if he pleases, make each article of a series different from all the others. This peculiarity of the machine affects the value of products in very various degrees. In the case of the book, for instance, mechanical repetition, within certain limits, is not only unobjectionable but even has its advantages. But while we do not object to finding our books repeated on a neighbour's shelves we do not want to find our clothing duplicated on his person, our wall-papers on his walls, our furniture, our china, our picture-frames, our carpets, and especially our pictures and ornaments, repeated in his rooms. In things which have any æsthetic significance —unless they are members of a repeating series—repetition is a serious defect. Variety (not necessarily novelty) is a primary æsthetic quality; and individual character is a necessary supplement to beauty. A picture gallery filled with identical replicas of a single picture would be deficient in interest, no matter how excellent that picture and its replicas might be.

The influence of the machine is thus æsthetically bad. Apart from the inferiority of the machine product—its lack of interest and individual character and its frequent disregard of the genius of the material (as the stamping out of "wood-carvings" with steel dies)—the actual conditions of machine production, involving thousands of repetitions, are antagonistic to the qualities desirable in things of æsthetic interest.

In certain cases, absolute repetition is a positive advantage. In machines—which, by the way, differ from all other industrial products inasmuch as they are probably better made by machinery than by hand—the exact repetition of parts is a great convenience, enabling worn or damaged portions to be easily replaced. But standardization, which is effected for the benefit of the consumer, is quite a different phenomenon from the repetition which we are

considering. Although adopted by certain makers of mechanism—usually, however, in connection with their own products only—it is usually avoided by the manufacturer, as tending to economize consumption. For instance, of all the loose leaf books, files, etc., on the market, there are probably not two of identical gauge, though standardization with interchangeability of contents would be a great convenience to the users.

Immense outpourings of mechanical repetitions thus tend to restrict alike the choice of the consumer and the opportunity of new producers. Great issues of "film novels" and other works of fiction adapted to the taste of the uncultivated fill the booksellers' shops, to the disadvantage of the cultivated reader and the new author; who finds it harder now than ever to obtain a hearing. The cheap, low-class magazines—products of the modern high-speed press—which load the bookstalls, have already squeezed out the fine carefully printed illustrated magazines of thirty years ago, and are ready to strangle any similar newcomer. For after all, consumption is limited, and if huge runs of low-class products yield the larger profit—as we have seen that they do—they are the commercially fit and must ultimately survive. And the laws which apply to books are equally applicable to other commodities. Boots, hats, textiles, furniture, pottery, metal goods and even the materials and fittings of houses; all tend to settle down to a uniformity of style and inferiority of quality adjusted to the conditions of mechanical production.

It remains to consider the effects of further mechanical development on industry and its products; and when we do so, we perceive that mechanism is in somewhat of a dilemma. For, whereas the tendency of the machine is to exterminate the craftsman, all production, even the most highly mechanical, is ultimately based on the hand-worker. The craftsman is the foundation of all production. There is no escape from him. The machine is but a copying and reproducing device. It can copy and reproduce endlessly and at lightning speed; but it can originate nothing. In a newspaper, printed at forty copies per second, every letter was originally a personal work, separately designed and cut by hand on the steel punch from which the copper or brass matrix was made. Every machine-made cup, jar or vase is the offspring of a piece modelled or turned by hand. Every piece of sham repoussé work is made from a model wrought by hand—

though not, perhaps, in the proper material. And so with imitation wood-carving, leather work, Lincrusta, jewellery, and every kind of casting; all are reproductions of a craftsman's work. Every piece of instrumental music rendered by the gramophone involves the existence not only of a composer, but also of one or more skilled executive musicians. Wall-papers and printed pictures and decorations are obviously based on original drawings or paintings; and machine-made textiles must be preceded by a design.

Hitherto the machine industries have been able to draw upon the survivors from the age of handicraft. But the machine, which has undersold the craftsman and captured his industry, is an obstacle to the replacement of the few that remain. When these have disappeared, what is to happen? The problem is being dealt with to some extent by the Art Schools and Technical Institutes, in which a new type of designer is being produced whose working drawings can be "realized" by a simple artisan. But the drawing-office designer is no substitute for the craftsman. "Design" as apart from execution has no real existence; for good design is based on the "genius" of materials and processes. A good wood-carving must be conceived in terms of wood and cutting tools; good pottery should suggest the properties of clay; embossed metal should look malleable and suggest the hammer and punch. In high-class craftsmanship these qualities obtain. A drawing of a proposed statue suggests at once marble, bronze, or terra-cotta. It is clearly designed for one or other of those materials. Painters in oil or water-colour think in terms of their medium, just as the etcher, the dry-point worker or the mezzotinter thinks in terms of the bitten line, the burred line or the "rocked" and scraped plate. The proper person to design a work is the one who is to execute it; the craftsman who thinks in terms of materials and tools. The "paper designer" who thinks in terms of "design" uninspired by intimate knowledge of materials and method, must tend to produce work unsympathetic with and even antagonistic to the "genius" of the medium, work good enough, perhaps, for machine production, but flat and characterless as compared with the work of the skilled human hand.

Since the above conditions are the reactions of advancing mechanism, and since mechanism continues to advance, it appears that their increase is the tendency of the present and—unless some counteracting influence should appear—

of the near future. That tendency is for the products of industry to become less and less adjusted to the needs of man and more and more adjusted to the needs of the producing mechanism: a tendency involving as a further consequence a progressive reduction in the already low æsthetic value of industrial products, with the yet further consequence—since the æsthetic faculty is largely the product of the æsthetic environment—a further lowering of the already depressed standard of public taste.

Summary of Reactions on Industry.

And now if, postponing to the ensuing chapters the consideration of the more specifically human aspects, we summarize the results reached in this chapter, we shall find that the reactions of the Power Machine on Industry and its products are mainly as follows:—

1. The disappearance of the skilled craftsman and his replacement by the manufacturer and the semi-skilled or unskilled factory hand; with the like disappearance of the skilled shopkeeper and his replacement by the mere vendor of factory-made goods.

2. The disappearance of small local industries and their replacement by great factories and industrial towns.

All of the above changes are adverse to general convenience and welfare. The older methods of supply were more elastic and adaptable than the present. The consumer could state his wants to the producer and have them supplied. Nowadays he applies to the retailer who informs him "what is being made"; and this he must accept, whether it is suitable or not. But apart from production, the craftsman rendered many small but valuable services. He could repair, renovate or adjust, and his services could be preceded by consultation and advice as to repairs or new purchases or the treatment or management of articles of use. Now, a worn or damaged article has to be taken to the retailer, who, having neither knowledge nor skill announces that it "will have to be sent to the factory." But more usually a factory-made article is unrepairable and unadjustable; if worn or damaged it has to be thrown away and replaced by a new purchase.

3. The disappearance of commodities made by hand with conscious adaptation to human and even personal needs and their replacement by goods produced by machinery and adjusted to the necessities of machine production. Re-

placement of a relatively small number of articles of various character and high quality by a relatively large number of articles of uniform character and low quality. Great quantity with small variety. Low price with general debasement in character of products.

4. Lowering of standard both of production and of the judgment of products, good work being now frankly regarded as impracticable "in these days of high pressure." Loss of character, interest and dignity of products of human work.

5. Wasteful habits and disrespect for products of industry as a result of the vast supply of cheap commodities; as instanced by carelessness, especially among the poor, in treatment of fragile articles, frequent replacement of unexpendable commodities such as earthenware, cheap watches, hosiery, etc., and by the extravagant use of cheap expendable commodities such as matches.

6. Tendency to lowering of public taste by constant contact with things tastelessly designed and badly made.

Thus the reactions of Mechanism on Industry appear to be mostly unfavourable to human welfare. The single advantage of machine production is that commodities can be purchased in large numbers at a low price; an advantage that tends to be greatly overrated when the accompanying reduction in value is overlooked. The functions of hand production were to supply the population with the best commodities available and to secure for the worker an adequate livelihood; the function of machine production is to secure great wealth for the members of a small class—the factory owners—at the expense of the worker and the consumer.

But it appears that the solitary virtue—cheapness—of machine-made commodities is rapidly becoming extinct. Daily the workers demand and obtain larger wages and shorter hours of work. The inevitable result is an increase in the price of machine-made commodities; a result not merely threatened but already accomplished. Indeed the prices even now demanded for factory-made goods are sufficiently high in many cases to remunerate quite fairly a craftsman producing hand-made commodities of greatly superior quality.

CHAPTER VII

REACTIONS OF MECHANISM ON MAN COLLECTIVELY

Of all the changes brought about by the advent of the Power Machine by far the greatest and most far-reaching is that abrupt alteration in the conditions of production and human labour known as the Industrial Revolution. The change was fundamental. Not only did it affect the conditions of industry, the lives of the workers, the means of production; not only did it change the character of the commodities used by man, the entire aspect of many parts of the country, the very character of the worker himself; it changed from the very foundations the whole fabric of Society, it brought into existence new institutions of first-class importance, and rendered obsolete others which had lived on from the dawn of history. It was the greatest Social Revolution that had ever occurred. And the changes then set going have since continued with ever-multiplying reactions, the end of which no one can foresee.

Let us consider the change and note its essential factors.

In the pre-mechanical age production was largely individual. The producer was what we call a craftsman (the old word "tradesman" having been transferred to the vendor), meaning thereby a worker who is capable of transforming a mass of material into a complete commodity, and the division of labour was little more than that rendered necessary by difference of material. Thus the wheelwright would complete his wooden wheel and pass it on to the tire-smith, who was a worker in iron. A considerable proportion of the producers were independent and solitary workers, making complete commodities and selling them either direct to the consumer or to pedlars; working under conditions determined by themselves and taking the bulk of the profits of their labour. In other cases they were employed as journeymen, foremen, etc., at a fixed wage. But always they worked, if not alone, in small aggregates in workshops of moderate size, and if they were employees, their master was a craftsman who worked with them. Even in establishments of the largest size, such as Wedgwood's works at Etruria, the conditions of craftsmanship obtained—Wedgwood himself was not only a practical potter, but was said to be the most skilful "thrower" in the works.

The surroundings of the worker were usually pleasant. The craftsman's workshop commonly adjoined or was actually part of his house and opened on the street; and though the hours were long, the conditions of labour were easy-going. The shoemaker or tailor discussed the political situation as he worked; the carpenter could converse with his apprentices or journeymen or with a chance visitor; the smith could chat through the open smithy door with a passing gossip, the weaver could talk to a friend as he sat at the loom. And then the work was interesting. The craftsman was a creator. His products were mostly his own work throughout; usually they were designed by him; or if, as in the case of the shipwright or mason, he was engaged on a joint work, still there was a personal interest in the result, and his own contribution was appreciable. The importance of this personal aspect, the pleasure and engrossing interest of actually making things (not parts of things) can be appreciated only by those who have practised a handicraft.

Of the other conditions of industry in the pre-mechanical age, we may note that the solitary worker was a master who determined his own hours of labour and the general circumstances of his life, and that, as he usually dealt direct with the consumer, he received the entire profit of his work.

The arrival of the Power Machine initiated a radical change in the status and conditions of life of the worker. The great engine, with its constellation of producing machines, assembled multitudes of workmen in a single building. And since a large engine is more economical than a small one, the size of the mill or factory tended ever to increase; and since the local conditions favourable to the establishment of one factory were favourable to the establishment of others, assemblages of factories arose and the Industrial Town came into existence.

Thus one of the earliest of the reactions of the Power Mechanism was a complete rearrangement of the working class. Whereas formerly the workers had been distributed among the rest of the population in amicable and mutually helpful relations with them, they now became concentrated in huge aggregations, living a life apart and rapidly growing up into a class, different in surroundings, in interests and in sympathies from the rest of the community.

This concentration of multitudes of workers in certain limited areas must alone have generated important social changes. But there were other factors. Of the men forming

these great aggregations, all had a grievance; and all had the same grievance. Their conditions of life were almost intolerable. They worked like galley-slaves; and the work was ill-paid and was not worth doing. All the interest and pleasure and humanity were gone from labour. They made nothing. The machine made the products and they tended the machine—the tireless machine that raced on hour after hour, with never a pause for rest and relaxation, until they were faint with fatigue and streaming with sweat. And whereas they had formerly worked, to a large extent for their own benefit and received the profit of their labour, they now worked for the benefit of a greedy, unscrupulous employer who appropriated the profits of their bitter toil and handed them but a bare pittance.

Of the abominations of the early days of machine production there is no need to give details. The atrocities of the early millowners have been recorded and will go down to posterity in company with those of the slave trader and the planter. And even as free America of to-day is gathering in the harvest that was sown in "the middle passage," so the callous rapacity of those "makers of Industrial England" who ground the faces of the poor and built great fortunes on the misery and poverty, not only of men, but of women and little children, contracted on behalf of mankind a debt that posterity has yet to pay.

The first reaction of mechanism, then, was to transform discrete industry into concrete industry; to pick out—as a magnet picks iron filings out of a mixed powder—the workers who had hitherto been disseminated among the general population and had formed an integral part of it, and weld them into a solid mass—"Labour"—separate from and more or less antagonistic to the rest of the community.

It is important to realize that this transformation was really a reaction of mechanism and not merely a coincident change. The close aggregation of workers in limited areas was an adjustment of human activity to the conditions created by the existence of a great machine plant with a central power machine. It had no other origin, and was in fact otherwise unfavourable to human industry; for the centralization of production created difficulties of distribution which did not exist so long as production was generalized —so long as commodities were produced in the areas in which they were consumed. Moreover, the Power Machine

not only demanded aggregation; it rendered it possible and indirectly favoured it. Mechanical transport made easy the supply of large quantities of food to non-producing areas; and by facilitating the importation of food, disadvantaged local production and discouraged agriculture, thereby encouraging the migration into the industrial towns of the agricultural population.

The sinister influence of the machine was at first clearly recognized by the workers, as is shown by the machine-breaking riots with which the Industrial Revolution was ushered in. The "folly and short-sightedness" of these workers has been abundantly condemned by all sorts and conditions of economic writers, but it appears as though the plain man had one faculty denied to the more subtle-minded theorist—that of perceiving the obvious. The fact that a machine that can do the work of fifty skilled men is an awkward competitor to the skilled workman, would seem to require a good deal of explaining away. However, this may be, the later generations of workmen have accepted machine industry as the only form known to them, while the modern political "Labour Leader" is even now demanding more and more and yet more mechanism. And quite properly so; for he, himself, like the "Organized Labour" which maintains him, is a product of the Power Machine.

To sum up the earliest reactions of the Power Mechanism on man collectively:

1. The working class was concentrated into local aggregates of men engaged in identically similar activities and living under similar conditions.

2. The conditions of life and of labour were highly unfavourable, and were bitterly resented by the workers. Joined to these conditions were others less directly traceable to the machine—though they were rendered possible by it and would have been impossible without it.

3. The profits of the workers' industry were appropriated to an unreasonable extent by the factory owner.

4. The men, and still more the women and children, were subject to intolerable tyranny by the employer or his agents. And then there was the circumstances—not attributable at all to the machine but given significance by the conditions which it had created—that,

5. The workers were denied by law the right to protect themselves by the only efficient means at their disposal—

combination into unions for collective negotiations with employers.

And then, rapidly and with growing intensity, there became apparent among the workers a general restlessness and discontent due to the joyless monotony of their sordid laborious lives, a settled hostility to the employers by whom they were exploited—" The Capitalist "—and a resentment against the community in general by which (through the Government) they were denied the right to protect themselves against their oppressors.

As time went on, some slight amelioration of the condition of the working class was brought about by legislation. Reports of the horrors of factory life spread abroad and the public conscience was aroused, with the result that certain laws were enacted controlling, to some extent, the conditions of factory labour, especially in respect of women and children. But the most important change was that which took place in 1824, when the restrictions on the combination of workers were abolished and the establishment of Trades Unions was made legal. This introduced what we may call the second stage of the reactions of mechanism on man collectively.

With the formation of the Trades Unions the chief disability of the workers was removed. The individual employer, controlling with a single hand the whole of his interests, was now no longer confronted with an incoherent multiple of individuals, each separately helpless, but with a single person—the men's agent or leader—who could bring to any negotiation the power of controlling the collective action of the whole body of workers. The men, through their appointed agents, could now bargain on fairly equal terms with the master for improvement in wages or hours of labour; for the strike, which stopped the employer's profits while his expenditure (in interest on the value of his costly plant) largely continued, was a highly efficient weapon. And thus began the period of organized industrial warfare.

The evolution of the new organization took its inevitable course—that of progressive integration. Local unions united with other local unions having similar interests, thus increasing the stability and resources of each. The employers formed unions, and were countered by further amalgamation of the workers' unions into yet larger, more stable and more powerful organizations, by which the

conditions of labour could be controlled over large areas or entire industries.

And all the time the machine continued to pursue its own course of evolution, characterized like that of its human attendants, by a continuous integration. Ever, the Power Machine continued to increase its output of power, the derivative "producing machine" its capacity to turn power into speed of production; and while the evolution of the latter progressively increased its intricacy, its power of doing skilled work and superseding the skilled worker, the multiplication of such machines in response to the increase of available motive power led to the further enlargement of factories and thereby to the further concentration of workers in particular areas.

The stage of Industrial Warfare—the struggle between the employer and the employed on issues directly related to employment—continued with ever-increasing integration and organization on both sides. But gradually a new element crept in. The growing size and complexity of the unions produced a change in the character of the workers' agent or leader. No longer a simple workman, employed by reason of special abilities for a specific transaction, he became a permanent official. He specialized in leadership, he studied the subjects bearing upon the employment of labour and he developed a tendency to justify his existence by a display of activity. If he was a sound, conscientious, capable man, he devoted his time and energy to schemes for the betterment of the working class on constitutional and economically sound lines. If he was pugnacious in temperament he tended to increase the activity of Industrial Warfare and multiply contentious issues. In a more extreme form he became an agitator, frankly "out for trouble"; and in a still more extreme form he degenerated into that now-familiar type, the professional mischief-maker. But in any case he was a man habitually and professionally engaged in the manipulation of large bodies of men who were nominally his employers: that is to say, he had the essential characteristics of a professional politician. It needed but one more step in the process of integration to convert him into an actual politician, and that step has already been made. The federation of the great unions into still larger organizations, and the looser, but still effective, federation of them all into a single body—"Labour"—has made the principal leaders not only

politicians, but politicians of commanding power. For the labour leader differs from all other politicians in that he has behind him a constituency not only formidable in respect of its numerical strength, but one highly plastic and manageable by him, uniform in composition and interests, united in purpose and cherishing political ideals which are not merely academic but are looked to as ideals of personal welfare the realization of which is expected to yield substantial material benefit.

It is natural that the appearance of so formidable a body on the political horizon should not have passed unnoticed by the regular political practitioner. And it has not. The wave of Collectivism which is now sweeping over the political world appears to be a response on his part to the evident necessities of the present and the immediate future; an adjustment to an electorate which is certain to find in Collectivism the most acceptable doctrine.

For Labour is almost solidly collectivist. It has been so from the early days of the Industrial Revolution, and some form of Collectivism—or Socialism—has been the political creed of every social reformer from Robert Owen downwards. That it should continue to be the political creed of Labour is inevitable for several reasons.

The political opinions of Labour are to a great extent the opinions of the leaders: and the leaders, as we have seen, are virtually professional politicians. But Collectivism, or Socialism, is essentially a politician's doctrine. It is full of political mechanism and is a system of political activity which presupposes the existence of politicians and has use for them. The mode of thought which pervades it is that habitually employed by politicians. It is not interested in, and takes little account of natural causation, of natural agencies or of natural processes. It conceives social changes and even human progress as the products of governmental activities and looks for further advance of civilization and human welfare to the political activities of a suitable government; and it tends almost totally to ignore the parts played by individuals in the production of existing social conditions.

Moreover, Collectivism is a doctrine specially adapted to the rather rudimentary thinker; to the man whose conceptions of causation are simple; who can think of it only in terms of the proximate and direct and is unable to conceive remote and indirect effects; who in his political fore-

casts, easily confuses results intended with results achieved, having failed to take note of the rarity of such coincidence in actual practice; and who is incapable of reasoning from conditions observable in the past or present to those to be anticipated in the future. To a man, for instance, who could be aware of the existing gigantic bureaucracy, who could note its disregard of the public welfare, its inefficiency, its wastefulness, reckless prodigality and costliness at a time of acute financial difficulty; its obstruction of business, commerce and production at a time of general scarcity; who could be aware that these conditions have been brought into existence by a collectivist government and are a phase of Collectivism, and who should be unable to draw the obvious moral: to such a man the doctrine of Collectivism is eminently adapted.

Furthermore, Collectivism has a quality which must make it peculiarly acceptable to the working class in that it promises substantial benefits, especially to the poor and unsuccessful. It undertakes not merely to abolish poverty but to ensure a state of general well being, and this independently of any special efforts or capabilities of individuals; for Collectivism postulates the unconditional right of every man to comfortable maintenance. It points to the wealth, actual and potential, of individuals and commercial bodies, and promises to transfer its ownership to the community for the enrichment of the present poor; and this not by the slow and wearisome process of evolutionary change, but by the swift action of legislation. Evidently Collectivism is the ideal doctrine for the man who has neither material possessions nor the abilities for creating them.

And while these political changes have been taking place, mechanism has continued to evolve and produce its immediate reactions. The railways have extended and inosculated until they have become a single system employing a vast working population. A modern steamer has the tonnage of a fleet of the early merchant ships. Equipped with the gigantic and multitudinous modern machines, individual factories have grown to the magnitude of villages or even towns. The facilities of mechanical transport bring industries into closer relation and favour the formation of trusts and combines; and similarly bring into contact the bodies of workers in different countries. And thus is prepared the way for the next advance in the integration of Labour—syndicalism.

Before considering this political system, we may note two of its antecedents, the extended strike and the change in the personnel of the working class.

When the operation of the strike began to extend from local and particular works to entire industries, its effects extended beyond the area of warfare and were felt by non-combatant members of other industries and by the community at large. The public inconvenience thus occasioned would have seemed to be a defect in the strike as a legitimate weapon; but by the political leader it was soon hailed as an element of further efficiency; for a general strike, by which social order could be gravely disturbed and the welfare of the community seriously menaced, could be used with immense effect as a means for the coercion of Parliament and the enforcement of new legislation demanded by the Labour Leaders.

The change in the personnel of the working class has proceeded concurrently with the evolution of mechanism. It is evident that the working class of to-day does not completely coincide in character with that of the pre-mechanical age. Modern industry, with its vast and complex distributing system and its multiplication of middlemen, has created new occupations and brought into existence immense numbers of clerks, accountants, travellers and others whose conditions of work are more acceptable and among whom a higher standard of education and intelligence prevails. And these more "genteel" occupations have absorbed the men who in the past would have become the skilled individual workers. Thus the working class comes to be formed of the residue of men of a distinctly lower average intelligence, in adjustment to the relatively small demand for intelligence made by the conditions of machine production. That the working class consists largely of men of very slight skill was clearly shown during the war; when so-called "skilled" men were called up for service and easily replaced by admittedly unskilled men, or even by shop-girls or domestic servants.

Moreover, "Labour"—as, indeed, its distinctive name implies—consists very largely of mere labourers, entirely unskilled. But the man who reaches adult, or at any rate middle age without acquiring even manual skill, may fairly be assumed to be a person of extremely poor intelligence. And this assumption is abundantly supported by the experience of those who, like the present writer, had to

deal with considerable bodies of such men in the course of military service.

From which it appears to follow that Labour, considered as a whole, represents the lowest intelligence of the population.

Returning now to Syndicalism, we note the excessive obscurity and ambiguity of such underlying doctrine as it has. The Syndicalist is to the present writer somewhat as the chimpanzee was to Lord Dundreary—"the sort of fellow that no fellow can understand." Indeed Syndicalism as a system of social polity is extraordinarily vague. For while its initial operations have been more or less distinctly planned, no final purpose appears to have been conceived in intelligible terms. As I understand it, the programme leads off with a succession of universal strikes conducted by the federated trades unions of the entire world; whereby all the activities of Society—manufacture, transport, communication by post or telegraph, the production and distribution of food and all other commodities—would be suddenly brought to an end. What would happen thereafter is somewhat less clear. The idea apparently is that as the whole fabric of Society would be destroyed and the population starving and helpless, Federated Labour would be in a position to dictate its own terms, which would be that it should assume the entire powers of Government and thenceforth conduct the affairs of the civilized world in accordance with its own interests—and presumably without regard to the interests of the rest of the community. How the working class would escape the starvation resulting from the general Social paralysis does not appear; but perhaps Syndicalist thought—concerning itself exclusively with proximate results and ignoring the remote—has not progressed as far as that. To the ordinary economic thinker the whole scheme looks like what Carlyle would have called "a heap of clotted nonsense." But that is not our concern. The Russian catastrophe has shown us that, given a sufficiently large numerical proportion of densely stupid persons and the inevitable professional mischief-maker, completely unworkable social theories may be put into operation. What here concerns us is that Syndicalism presents the manual worker as openly hostile to the rest of the community. It is frankly anti-social as well as undemocratic. It aims at the destruction of existing institutions but has no institutions wherewith to replace

them. It proposes that the governing class shall be exclusively that class which we have seen to represent the lowest average intelligence of the population. If it should ever become realized from theory into practice, there can hardly be a doubt that that event would coincide with the collapse of Western civilization.

From which emerges the corollary that the working man tends to be a bad citizen. In spite of the splendid virtues which he displayed during the war; his courage, his endurance, his devotion, his capacity for noble self-sacrifice, his loyalty and his real patriotism; he tends to be a bad citizen. He is a thoroughly good fellow—fundamentally honest, just and generous. He is thoroughly sound at heart; but he is not quite so sound as regards his head. Owing to his rather rudimentary collective intelligence he allows himself too often to become associated with political adventurers of a low type and used as a means for promoting schemes antagonistic to the welfare of mankind. The early unions, as we have seen, occupied themselves entirely with the legitimate negotiations between master and man. But the large modern unions, and especially the federations of unions, such as the "Triple Alliance," are purely political. Their activities are directed, not against employers, but against the community. They aim at setting up class antagonism and conducting class warfare. In short, they are syndicalist in character and in respect of their purpose, profoundly anti-social.

But, it may be asked, what has this to do with mechanism?

The answer is that Syndicalism is exclusively the product of a reaction of the Power Machine. It has been brought into potential existence by the contemplated integration of the great Trades Unions into a single body; and the effected integration of those unions will bring it into actual existence. But the great unions are the products of the integration of the smaller unions into larger bodies. The smaller unions were formed by the integration into definite bodies of the looser aggregates of workers assembled in factories; and the final cause of the formation of those aggregates was the central power-generator, which brought into existence the factory and established the factory system.

In the absence of the Power Machine there is no tendency for such local aggregations of workers to form. Nothing would be gained by aggregation, and certain conveniences

would be sacrificed. Where mechanical transport did not exist, production in small quantities in the areas of consumption would be more economical than large production in central factories, involving complex, troublesome and costly methods of distribution; and as the workers would be handicraftsmen, each capable of independent, individual production, there would be no inducement for them to herd together in large works. In the past, it is true that certain circumstances—the use of bulky and costly appliances such as furnaces or kilns, the occurrence in particular localities of masses of raw material such as clay, coal or iron, or the appearance of a master craftsman of outstanding genius like Wedgwood or Dwight—occasioned industrial aggregations of some size. But these were limited to the operation of their local causes and had no tendency to produce that universal and progressive integration of the working class into concrete bodies of ever-increasing magnitude which is the special characteristic of the industrial system associated with the Power Machine.

Moreover, the conditions of machine labour are fundamentally and incurably bad. The craftsman spends his life in activities which are interesting and even pleasurable. He sees the product of his work grow up and finally become complete. If he is a solitary worker, he works at his own time, and though his hours may be long, they are fixed by himself and he receives the profit of the whole of his output. In any case, he is not hustled, and he works under human conditions. The machine worker, on the other hand, spends his life in an occupation that is incurably dull. It is not work in the higher sense—the creation of a specific, personal product; it is mere labour, with no beginning and no end but the sound of the factory hooter. Then he is continually hustled by the machine. Its high speed, its untiring character and lack of correlation with his own powers involve continuous physiological strain, resulting not only in fatigue but in irritability and discontent. When the day's work is done he is fit for nothing but such passive recreation as is afforded by the picture palace or the professional football player.

Shorter hours and better pay will, no doubt, improve his condition. But the essential evil is incurable and will remain so long as the machine is the master and the man its attendant slave. And so long as it remains uncured, the sufferers from it will be restless and discontented; and a great

mass of restless and discontented men is the perfect soil for the operations of the anti-social propagandist.

Thus those reactions of mechanism on man collectively which manifest themselves in changes in the working class have already set up conditions unfavourable to the workers as well as to the rest of the community; conditions which even now threaten the stability of social organization and which, if the changes should continue to progress in the same direction, may actually involve the destruction of the present civilization.

From the changes in the condition of the working class and in its social functions and its place in the social scheme, we may now pass to another group of reactions on man collectively which operate through the individual who employs that class in conjunction with mechanism as the means by which his own activities are conducted—the " Capitalist " of Labour propaganda.

And here again the tendency exhibited is that of progressive integration; which occurs in two well-marked stages, of which the first results in the evolution of a particular type of capitalist and the second in that of compound capitalistic organization. Let us examine these two stages of integration in the natural order of their occurrence.

It has been noted that the change in the conditions of the production of commodities which resulted from the establishment of the Power Machine brought about a related series of changes in distribution. When commodities were produced in small quantities to supply the needs of limited areas, distribution was quite simple. The village weaver, for instance, could obtain his flax or wool from the local grower and dispose of his cloth either directly to the consumer at the market or otherwise, or to stationary or itinerant retailers. But when production on a scale adjusted to the needs of the whole country became concentrated in a few large factories, remote from the areas of consumption, distribution grew up into a separate industry. The manufacturer, producing in bulk, found it convenient to deliver his products in bulk to a middleman, by whom they were distributed, either to retailers or to other middlemen who undertook the distribution within certain areas. Thus the consumer had to pay, not only the producer's charge, but that of the retailer and of one or more middlemen. Moreover, the increased facilities of transport created a ten-

dency to use foreign material in place of native. For instance, cotton has tended to displace flax, and foreign timber the once almost universal oak, beech and walnut; and thus behind the manufacturer appeared on a new and larger scale the importer, the shipowner and the foreign grower.

This series of changes, exhibiting the division of labour and specialization of function that has everywhere followed the establishment of the Power Machine, shows a disintegration so far as the functions of the producer are concerned, with integration in respect of the distributor. But the next stage shows us a re-integration in regard to the functions of the former; or perhaps we should call it a further integration of the latter, for the tendency really is for the distributor to absorb the producer rather than for the producer to absorb the distributor. This will become evident if we examine an illustrative case.

Let us take an instance of a kind that is becoming increasingly common—that of a shopkeeper who embarks on a policy of expansion. He is, of course, a man of unusual abilities within certain rather narrow limits: he is highly energetic, methodical, thrifty, has a gift for organization and the power of concentrating his attention on the details of profit and loss without losing sight of general principles.

By the exercise of these abilities he presently saves enough money to enable him to open a second shop and install a manager therein. At once his income is increased in two ways; for whereas the profits from two shops are greater than those from one, the larger quantity of goods sold enables him to buy on more advantageous terms. With the increased income, or perhaps a judiciously effected loan, he is able to establish a third shop; and again his gross income is enlarged and his position as a buyer improved. By the repetition of this process, the size of his business presently becomes so far increased that he is able to dispense with the middlemen and buy in large quantities directly from the manufacturer. Thus he adds to the retailer's profits those of the wholesaler.

His progress now becomes accelerated. His shops continue to multiply, either in a circumscribed area or throughout the country, according to the policy on which he has decided, until his transactions attain such a magnitude that it pays him to set up a factory in which he can produce a part of his stock; which part, it is needless to say, he " pushes " in preference to the part which he still has to buy from other

producers. Thus to the profits of the retailer and wholesaler, he adds those of the manufacturer.

Further multiplication of his retail establishments is followed by extensions of his factory: and as it was with manufactured goods, so is it now with raw material. At first he must buy from the broker or middleman; but as his consumption grows he is able to buy from the importer. Then, as his consumption still increases, it pays him to charter or buy ships and obtain his material direct from the foreign grower. Finally, his transactions have grown to such magnitude that it becomes profitable to him to acquire plantations, concessions, forests or other areas of natural production and raise his own produce.

He is now completely self-contained. He is his own grower, importer, shipowner, manufacturer, wholesaler and retailer. He controls an entire industry from beginning to end, from its centre in the area of original production to its periphery in the retail shop. He has superseded the whole chain of middlemen and appropriated their profits, and it now remains only to extinguish competition and establish a monopoly. This he can do quite easily in so far as individual retailers are concerned; for, by means of his multiple profits, he can lower his prices below those of other retailers, or by selling certain " lines " of goods at cost price, hopelessly undersell the individual shopkeeper. In effect, the latter is presently squeezed out of independent existence and probably compelled to accept the position of manager or assistant at one of the multiple shops.

But our commercial adventurer—or the limited company into which he has probably converted himself—although he has squeezed out the individual shopkeeper, has not yet acquired a complete monopoly. For there are competitors of his own type. And whereas he could easily " knock out " the small shopkeeper by—temporarily—lowering his prices even below cost, if necessary, such a policy adopted towards a trader of his own type would be disastrous. Each could hold out until both were impoverished; and impoverishment is not the object of either. What our adventurer does therefore is to effect an arrangement with other multiple retailers whose area of distribution coincides with or overlaps his own, whereby, though each business retains its independent ownership and management, the entire group acts, in its selling policy, as a single concern. The retail prices are determined, not by competition, or even necessarily by supply

of material and demand for commodities, but by an agreement between the respective members of the combine. Thus the final result attained is a more or less complete monopoly in respect of the commodities dealt with in the area controlled by the combine.

In America the process of integration is carried even farther. Under the Trust system, the connection between the constituent firms is much closer, the organization more perfect, the co-ordination more complete. The American Trust is on a more gigantic scale than the European combine. It controls a vaster area—which in some industries may be that of the whole world—and is itself controlled by a definite governing body or by a single individual—a commercial "king" or dictator. It may acquire not only sources of raw material and lines of shipping, but may even obtain possession of systems of inland transport; and thus, with its definite and adaptable policy and complete control of production and distribution, it is able to approach very near to that goal of perfection of the commercial operator—a complete monopoly in regard to a particular class of commodity. With this monopoly it is independent of the laws of supply and demand, and can fix the prices of commodities in accordance with its own interests and without considering those of the consumer.

The Trust system thus represents the highest degree of integration at present attained. There appears to remain only one further stage; the final integration of producing and distributing agencies into a single body—the State.

At this point let us pause to consider the changing relations of the consumer and producer which have accompanied the process that we have been examining. And as we do so, we note that with the progressive integration of the producing and distributing agencies there occurs a correlative degradation of the consumer and a progressive separation between the two. In the pre-mechanical age the laws of supply and demand were normally operative; the producer and consumer were in close relation and complete adjustment; and specific commodities were produced to supply specific wants. Thus, the shoemaker produced a pair of shoes to fit a particular pair of feet and adjusted in style and material to the habits and expressed desire of a particular person.

With the progressive centralization and integration of production and distribution, this correlation of consumer and producer, and the adjustment of the latter to the former

have gradually disappeared; until, under the most advanced conditions, production has come to be almost exclusively adjusted to the convenience of the producer and the needs of the machine, while the consumer has become generalized into a sort of absorbent surface on which commodities can be cast in bulk in the hope that they will sink in and disappear. The choice, for instance, of the present-day purchaser of a pair of shoes is limited to the retailer's stock; which again is limited to the output of the factory which supplies it. The adjustment of the shoes is not to a particular pair of feet, but merely to a generalized foot which is assumed (on apparently insufficient grounds) to be the average human foot. Production, in short, has ceased to be an activity conducted for the mutual benefit of producer and consumer, but a sort of financial game carried on by men who are essentially financiers in which the workers and the machines are the "pieces" and the commodities and the consumers are the counters.

Thus each successive stage in the integration of the directing part of the producing and distributing agency, coinciding with the more complete evolution of the capitalist, ushers in a condition less favourable to Society than the preceding one. The greater the central control of production and distribution, the nearer the approach to a complete monopoly, the less is the necessity for the producer to consider the needs or interests of the consumer. And yet, obvious as this truth is, there are many serious persons who actually advocate a further extension of the process; who demand the nationalization of industry, the transfer of the whole mechanism of production and distribution to the State; whereby would be created a monopoly so complete that—no competition being possible—the consumer would be disregarded altogether.

Before leaving this part of our subject, it is necessary to take note of certain by-products of this process of integration. Of these the most conspicuous is the attainment of enormous wealth by individuals. Even in this country the wealth accumulated by the proprietors of great industrial concerns is often gigantic in amount and wildly disproportionate to that attained by the exercise of any other form of human activity, while in America the stupendous wealth of "Captains of Industry," "Steel Dictators," "Railroad Kings," and other types of millionaire has become a national problem and an international joke.

This concentration of the collective wealth of the community in the hands of relatively few individuals is itself a factor of social unrest. To the proletariat, the monstrous inequality of their position and that of the millionaire is a grievance. But it is not left at that. By the politicians who are parasitic upon them, the workmen are made to believe that this great wealth has been created by them and taken from them by fraud or sheer robbery. And, absurd as this belief is, there is in it this element of truth: that the workmen form one of the indispensable factors of the total agency of production; that they are the pawns moved by the industrial operator, and that the only (present) means of attaining this gigantic wealth is the exploitation of the working class. Thus the great accumulation of wealth by the directors of industry, by reason of its tendency to generate anti-social phenomena such as industrial and class warfare, Collectivism and Syndicalism, is itself an anti-social phenomenon.

But its influence on the welfare of Society may be injurious in another way. The possession by an individual of great wealth confers on him great power. It enables him to embark on enterprises of such magnitude as very sensibly to affect the condition of vast numbers of his fellow men. To take an instance of a kind that is not uncommon in the United States: he may establish and endow an educational institution—a school, a college, or a university—and lay down more or less completely the programme of instruction to be carried out in it. His intentions are of the best and the action is entirely generous and public-spirited. But it involves a serious danger. The man himself is an individual of great ability but of equally great limitations. He is as highly specialized among men as are the mole and the bat among mammals. He sees the world as an industrial arena, a place in which profits can be made and losses may be suffered. To him the purpose of human activity is commercial success and the goal of human effort the attainment of great wealth. With such ideals it is natural that he should employ his college or university for the encouragement of commerce and industry on the grand scale; for the production of a type of man useful in maintaining the commercial supremacy of the country; a good " unit of production " or great industrial operator, according to his abilities. Mere culture—Art, Science, Philisophy, History, Literature, as independent activities and not as means of industrial

advance—he is disposed to regard as somewhat of a triviality; "pure," as opposed to applied knowledge, and æsthetic cultivation, as the interests of the unpractical and as mere unimportant by-products of human activity. And with these perfectly honest beliefs and the equally honest intention of advancing the "real" interests of humanity, his weight will tend to be thrown into the scale of commercialism and against that of culture and intellectualism. But, however this may be, the important fact to note is that the millionaire's great wealth gives him the power to influence to a quite appreciable extent the acquired character of vast numbers of men, or even of whole populations, and thus its effect may be to lower the culture of entire nations.

But there is another, more direct and much more mischievous, way in which the great trader may control the personal characters of large numbers of men. The high-speed printing press is among the most developed forms of producing mechanism. It is capable of turning out good-sized volumes at the rate of from five to ten thousand per hour, while newspapers and the rougher kind of magazines can be run off at the rate of a hundred and fifty thousand copies per hour, or even more. Now, printed works differ from all other commodities in that they convey information, statements and arguments. They directly influence the opinions, beliefs and even the characters of their consumers, and it would be unreasonable to expect that this circumstance should be ignored by the manufacturer who produces them. In fact, it has been noted by him from the earliest days of the Press, and acted on with great energy. The catalogue of every publishing house reflects more or less the outlook of the head of the firm; every magazine has its own character and embodies certain views, which are those of the proprietor; while, as to newspapers, their actual function, which is that of supplying information, is very largely subordinated to "propaganda"—to the creation of beliefs and opinions, to modifying the political character of their readers and to generating various kinds of social and political activity.

It is in this respect that the integrating process described above acquires such enormous social significance. The proprietor of a single newspaper, if he is a keen politician, wields great power. But when he proceeds to embark on a policy of expansion and integration; when to a huge printing plant he adds those of accessory manufactures, with the control of the means of distribution and transport

and the production of raw material, his power becomes prodigiously increased. By means of his wealth and his perfect organization, he can squeeze out commercial competitors and political opponents or, by purchase, acquire their property, until from the proprietor of a newspaper he has grown to the proprietor of a "Press." Nor does there appear to be any limit to his growth. For, as the members of a combine may make their arrangements secretly and while acting unitedly may deceive the public by an appearance of fierce competition, so the newspaper magnate may secretly acquire papers whose policies are antagonistic to his own, and thus, by judicious management, actually control a body of hostile public opinion.

Nor is it the newspaper manufacturer alone who exercises these powers. A vast amount of control of public opinion is vested in the distributor. From day to day that of the publisher increases. Not only does he determine what books the public shall read, but he tends more and more to influence the character of particular books. So, too, the great literary clearing-houses tend to set up a system of control over works to be distributed which implies the exercise of considerable powers on the part of their proprietors. But still more extensive is the power of control possessed by the owners of the railway bookstalls; indeed, their power approaches that of the large newspaper proprietor. Not only can they very largely control the relative circulations of different papers, magazines, pamphlets etc., and thereby control the opinions of the reading public, but, by a definite boycott, they can, if they choose, render practically impossible the establishment of new daily papers, or magazines, or the publication of certain kinds of pamphlets and books.

Thus the power of controlling public opinion is already possessed to a dangerous extent by the great producers and distributors of printed matter. But the process of integration has here by no means reached the stage of completeness attained in some other industries. The book-publisher, the newspaper publisher, the clearing-house, the multiple bookseller, the bookstall proprietor, each exercises a great control over the beliefs, opinions and personal character of the members of the population. But if all these industrial bodies should become integrated into a single industrial body, controlled by a small group of persons, or even by a single individual, the political power of that group or individual would be almost limitless. Cabinet Ministers

and other politicians, to say nothing of King and Parliament, would shrink to the condition of mere puppets, while the population at large, as to its knowledge, beliefs, opinions, culture, and, to a great extent, its activities, would be the exponent of the personality behind the Press. Society would become a sort of colossal marionette show of which the guiding threads would be gathered into the hand of the Publishing King.

The next group of reactions of the Power Machine upon man collectively which we shall examine is that resulting in unemployment. Of course there were unemployed workmen long before the days of the Power Machine. Even the independent craftsman must have been at times without a specific task, though he would usually be able to fill in his time in making articles for stock; and the journeyman will have been occasionally out of work even though capable and industrious. But these were sporadic cases and quite different from the modern social phenomena of unemployment; the recurrence of which is almost inseparably connected with the Power Machine and the Factory System. Let us observe the nature of the connection.

We have repeatedly noted that there is no correlation between human needs and the activities of the machine. The latter is an independent entity, growing, evolving and carrying out its functions in accordance with its own laws, to which human actions must be adjusted whenever man and the machine co-operate. Whence once a machine with a given function has come into existence, it starts forthwith on a course of evolutionary change at each stage of which its efficiency is increased.

Now the functions of all producing machines are twofold. First, they must produce rapidly, *i.e.* they must produce a large quantity of commodities is a short time. And, secondly, they must work with a minimum of human assistance. Their efficiency is therefore to be considered in terms of speed and automatism; and growth of efficiency means a continually increasing output per hour of products and a progressive elimination of human labour.

But the function of all production, whether hand or machine, is to supply the population with the commodities that it needs; and when, as in the case of the textile industries, these needs were previously supplied sufficiently by hand production, the greater output of the machine enables it

easily to supply those needs with a fraction of the original human labour. But still the machine continues to evolve. The inventor—himself controlled entirely by mechanical laws—is not concerned with supply and demand; his business is to improve the machine, which he continues to do, with the result that the output is further increased and the element of human labour further eliminated. Then the supply begins to overrun the demand and the manufacturer has to find some means of getting rid of the surplus. In the cotton industry, which is a typical example, production in excess of the demand occurred quite early. But a complete remedy for over-production presented itself. The surplus could be exported to countries which were locally supplied by hand-production—at that time, virtually the whole world. And this remedy—export—is the one to which manufacturers in general look for relief from the effects of over-production.

But if, for a moment, we cease to "think imperially" —which in this case means parochially—and consider the problem in terms of mankind, we see that export is but a temporary remedy for over-production, and that its efficiency is already on the wane. At first this country held a complete monopoly of machine production. But this state of affairs is quite at an end. Factories are growing up all over the civilized world, and countries which formerly absorbed our surplus now not only supply themselves but even export their manufactures to this country. Industrial development is rapidly becoming universal; and when this development is complete, export must be limited to materials and commodities which are capable of being produced only in given localities. The dream of making any one country "the workshop of the world" is founded on a delusion. The whole world is becoming a workshop; and when it has become one, the gigantic output of the machine will cease to have any utility. There will not be enough consumers to go round.

And still the machine will continue to develop. Even with a dwindling demand, it will continue to increase its output, and by the multiplication of labour-saving devices—by ever increasing automatism—continue to eliminate the factor of human labour. And as the manufacturer finds increasing difficulty in getting rid of his products, so will competition become more keen and so will the demand grow for machines with a still larger and speedier output; for, as we have shown (p. 130), the greater and speedier the production, the lower is the cost and the greater the profit. Thus the later steps

of competition will present the curious phenomenon that a decreasing demand has to be met by an increasing supply. Of course this increased supply cannot be universal or the market would be glutted. The process will resolve itself into a race between machines for the greatest speed and bulk of production and the most complete elimination of the human labourer. The manufacturer who can achieve the most gigantic and rapid production and who can most completely dispense with human labour will be able to undersell his competitors and drive them off the market. Thus it would appear that the final stage of the present industrial system will be represented by a small number of enormous factories, each furnished with a gigantic plant of the most advanced machines, employing a mere handful of human labourers, and producing on a scale which will fill the available market and render competition impossible.

This is not a mere speculative prophecy. The change is taking place before our eyes. A century ago we supplied the world with cotton goods. Now about two thirds of these goods are manufactured abroad. In 1914 the cotton industry of America was practically equal to our own and considerable manufactures had grown up in Germany, Russia, India, China, Japan and other countries. In 1896 we already imported from other countries cotton goods to the value of over a million pounds, and by 1914 this quantity had grown to over ten millions. And so it is with other industries. The monopoly of machine production which this country held in the first half of the nineteenth century and the universal export trade that it made possible, were temporary conditions which have already to a great extent passed away. In the pre-machine age, each country, broadly speaking, supplied its own wants by hand labour; in the beginning of the machine age, the country which had machines supplied the rest of the world, which had not machines, with machine-made products; with the complete establishment of the machine age throughout the world each country will be able, broadly speaking, to supply itself with machine-made products. An interchange of commodities will doubtless continue, chiefly in respect of goods and materials capable of production only in a given locality; but export as a means of " unloading " the products of general over-production is already doomed.

And now let us observe the effects of these changes on the employment of human labour. The ridicule which has been cast upon the old machine wreckers of the eighteenth

century has been based on the assumption that consumption —and hence also production—was unlimited; that workmen thrown out of employment by one labour-saving machine could be immediately taken up by fresh machines. But this assumption was in its turn based on the further assumption that export was unlimited; for obviously a country which had been sufficiently supplied by hand-production could not consume the enormously increased quantity of commodities turned out by machine production. Or to put the matter in another way: since the country was formerly supplied adequately with commodities by hand-production, and since the machine could produce the same quantity of commodities with a fraction of the human labour, the entire working population could be employed in machine production only on condition that an immense surplus of commodities was produced; and this surplus could be produced only on condition that it could be disposed of outside the already fully-supplied area of origin—by export, in fact.

Thus the economic *raison d'être* of machine production and its capacity for employing the working population are alike—export. Over-production is an inherent condition of machine production and export the only adjustment that can render it possible economically. But universal export is an absurdity. A world, the constituent nations of which were engaged in exporting their productions to one another would be in a similar position to that community the members of which lived by taking in one another's washing. Economically, universal export would have the same effect as no export. Each country would produce approximately the equivalent of what it consumed. Whence it appears to follow that with the universal establishment of the factory system and the almost completely automatic nature of machinery, a state of affairs will be created very like that dimly foreseen by the old machine-breakers, in which man, ousted by the machine from all productive activities, must either be unemployed or seek a livelihood in some other occupation.

And this, too, is fast being accomplished. The process is masked by the conspicuousness of other factors. The relative dwindling of the working class is concealed by its absolute increase with that of the population and by the fact that workers displaced by the machine are taken up by other employments. The centralization of production has created a vast system of distribution and a great army

of distributors, while over-production has made into highly developed industries such activities as salesmanship, advertising and other devices for inducing or persuading consumers to buy what they do not want, but what the manufacturer must get rid of. These and other occupations, directly or indirectly dependent on machine production, absorb a considerable proportion of the displaced workers (who thus become transferred from the producing to the non-producing class). But it is obvious that the capacity for such absorption is limited and that the limit is being approached. The "high pressure," the "strain and tension of modern life" of which we hear so much, and the hurry and hustle which we see on all sides, furnish plain evidence that this is the case. They are the accompanying phenomena of the struggle for existence as the limits of the means of subsistence are approached.

It is manifest that in a stable society every man must be employed in some way. But the natural occupation of men is the creation of commodities to supply one another's needs; and if from this natural occupation man is ousted by mechanism, he must find some other occupation. But what other occupation is there? At present, the non-producing class is mainly engaged in getting rid of the products of the machine. But this is no occupation for a whole population or anything like a whole population. Nor is it an occupation adapted to the capacities of the labouring class. Moreover, with the establishment of the growing monopolies and the extinction of competition, such industries as advertising—which is based on competition—will tend to diminish. The inevitable end of this evolutionary process is unemployment.

And this is the position that confronts us to-day. In May, 1919, over a million persons who were unemployed were receiving "doles"; that is to say they were subsisting without work on the earnings of their fellow-citizens. Those were, of course, abnormal times. Conditions have since then undergone some temporary amelioration. But the fact remains that unemployment is the normal and inevitable result of the displacement from productive activities of man by mechanism.

The three groups of phenomena which we have examined by no means represent the total reactions of mechanism on man collectively. Indeed, we may say with truth that

of the many social changes which have occurred during the last century, there are few which have not been influenced by such reactions. The changes in the forms of government and especially in the type of politician by whom governmental activities are conducted, are clearly traceable to the appearance in the political arena of aggregated and organized labour. Similarly, the steady growth, not only of professed Collectivism, but of the curious tendency of the average man to think subconsciously in collectivist terms, though consciously he is entirely opposed to Socialism, is a reaction of mechanism; since the aim of Collectivism, conscious or unconscious, is the cure of social evils most of which have been brought into existence by the unsuccessful competition of the working man with the machine. But space will not allow us to pursue the investigation of these more remote reactions. The purpose of this book is to be suggestive rather than exhaustive; and the further consideration of the relations of mechanism to changes in the condition of collective man must be left to the thoughtful reader.

To sum up the conclusions reached in the present chapter, we find that the most conspicuous of the reactions of mechanism on man collectively are as follows:

1. (*a*) The extinction of the great class of independent skilled craftsmen, interspersed among and forming the bulk of the general population, living mostly under favourable and fairly pleasant conditions and generally satisfied therewith.

(*b*) The replacement of the above class by localized aggregates of workers living under inherently and incurably unfavourable and disagreeable conditions with which they are individually and collectively dissatisfied.

(*c*) The creation from the latter class of a great, organized body of men—the Federated Trades Unions—who, though individually patriotic and worthy, are collectively antagonistic to the rest of the community and whose collective political aims are markedly anti-social.

(*d*) The appearance of a great international movement—Syndicalism—the avowed purpose of which is the destruction of existing social institutions.

2. (*a*) Transfer of the production of commodities from the skilled craftsman to the financial operator—the Manufacturer—directing automatic machines and relatively unskilled workers.

(*b*) The creation of a chronic social nuisance by the recurrent conflicts of the employer of labour with the organized workers.

(*c*) The formation of anti-social organizations (combines, cartels, trusts, etc.) by which the supply and the prices of commodities can be regulated without regard to economic conditions and adversely to the interests of the community.

(*d*) The creation of a relatively small number of immensely rich men having, through their wealth, the power to modify the conditions of life of the community and to control and direct the mental states and actions of their fellow men.

3. (*a*) The progressive transfer of the working population from the producing to the non-producing class.

(*b*) Unemployment.

CHAPTER VIII

REACTIONS OF MECHANISM ON MAN INDIVIDUALLY

It is unavoidable that, in the present section of this book, there should be a considerable amount of overlapping and repetition. For we are examining the same set of phenomena over and over again in their different relations and viewed from different standpoints. We have considered mechanism in relation to its own growth and development, in relation to the human environment, and the products of human industry, and in relation to the conditions of man collectively; and when we now proceed to examine its reactions on man individually, we shall have to deal once more with the same group of factors though operating in a new direction.

The most important of the reactions of mechanism on the conditions of human life we have seen to be connected with the extinction of the handicraftsman and his replacement by a financial operator directing an organization of machines and relatively unskilled men. We have observed some of the consequences of this change on Society and its environment; but we have now to consider the significance of the change itself. And the significance of that change is profound. Our attention is apt to be diverted from it by the great and conspicuous productions of modern industry; the huge ships, the railways, bridges, the enormous factories and the wonderful machines; but far more important than

any or all of these is the fundamental change in the character of the population.

It is, of course, a slight exaggeration to speak of the extinction of the handicraftsman; for the craftsman is not extinct, and never can be, so long as civilization lasts. Not only do the painter, the sculptor, the etcher, the artist potter, and his fellow artists still survive; but there are still hand-weavers, tailors, boot-makers, carpenters, shipwrights, cabinet-makers, and other craftsmen of the old type. But these latter are mere survivals; they form a vanishing class that daily recedes before the advance of the machine. In an economic sense they have gone. Politicians, economists, and labour leaders, dealing with industry in terms of the aggregates of men that cluster round machines, ignore the craftsman as a socially negligible quantity. And, in the main, they are right.

We have, therefore, to consider the effects upon the individual units of this radical change in the character of the population. And first we may note the nature of the change. In effect this amounts to the transformation of a skilled into an unskilled population. As we have seen, in the pre-machine age, owing to the relatively slow methods, a much larger proportion of the population was engaged in production (including agriculture) than at present. In fact with the exception of the aristocracy and the professional class, the bulk of the population was so employed. And it is to be noted that under pre-machine conditions, each producer was a complete producer. The craftsman was usually capable of converting his material into a finished commodity by his individual activity, unlike the modern worker, who, owing to the extreme sub-division of labour, is a mere unit of production—a cog in a producing mechanism.

The better to realize the nature of the change, we may consider a specific instance. Let us take the case of a company of emigrants, such as set forth in the *Mayflower*, cast away on a remote but fertile uninhabited island, and try to imagine what would be their condition. In the pre-machine age, such a company would, in the course of a few weeks, have established a civilized community; for the bulk of its members would have been craftsmen and agriculturists, and, with their supply of simple appliances and tools and the abundance of the material around them, they would have been in a position to create conditions substantially similar to those of the home country. They would have carried

their culture with them; for that culture would be inherent in themselves.

How different would be the case of such a company at the present day! That company would consist almost entirely of men practically unskilled—shop-assistants, clerks, machine-minders, factory hands and the like. Even if they were workmen, they would be of the kind that either "tends" a machine or is at best engaged in making parts of commodities or executing parts of processes. They might be hands from a boot factory, but they would not be able to make boots; operatives from a cotton or woollen mill, skilful enough in tending a power loom or mule, but they would have no idea how to make cloth; the hands from a furniture factory or a great pottery would be unable to turn out a single chair or an earthenware cooking-pot. And so with the immense majority of workmen. Normally they are parasitic on the machine which has ousted them from natural human occupations; apart from the machine they would be helpless even in the presence of abundant material; and a company of such men, in the circumstances described, would be barely able to support themselves and would to a great extent lapse into barbarism.

The imaginary case given above could be supported by numerous historical instances demonstrating the independence and capability of pre-machine man. There is that of the "Pilgrim Fathers," a body of not much above a hundred men, women and children, who, landing in a completely uncivilized country, rapidly established a community having a standard of culture practically equal to that of England. Again, and still more instructive, there is the case of the ship *Antelope*, wrecked on the remote Pelew Islands on August 10, 1783. The ship's company numbered fifty (which included sixteen Chinamen) though the *Antelope* was but a small ship of 300 tons; and before the ship had fairly broken up on the reef, this company of seamen had set up a dockyard and begun to build a schooner in which to make their way back to civilized regions. The building, fitting and rigging of this vessel occupied the incredibly short period of three months, for she sailed on the homeward voyage on November 12, 1783. Her dimensions are not given in Keate's narrative, but her character and capabilities may be judged from the fact that she accommodated the whole company of fifty persons and one passenger (Prince Lee Boo); that she accomplished the considerable voyage from the

Pelew Islands to Macao, and that she was there sold for seven hundred Spanish dollars.

Another instance which occurs to me is within my own experience. At the end of the dry season in 1889 I was returning, with one other European and some three hundred African natives, from the far interior of West Africa and had just entered the northern border of the great forest. As we forded the swollen Tain (or Tyn) River it became evident that a storm was approaching and we accordingly halted in the early evening in an opening on the south bank of the river. Our available means of shelter consisted of two bell tents, one for each European, the natives usually sleeping in the open. But on this occasion, as soon as we had assembled at the camping-ground, the Africans, with one accord, stacked their burdens, and, taking their matchets (broad cutlasses) disappeared into the forest, whence they presently emerged carrying bundles of poles and coils of "monkey-rope." And with these materials and no tools other than their matchets, they fell to work with such readiness and goodwill that when I made my round about an hour later, the forest opening contained a village.

It was a remarkable and instructive spectacle. Each group of natives followed the national architectural tradition, the Ashantis and Fantis putting up rectangular buildings very much like small English cottages, the Grushis and Dagombas erecting circular huts with conical roofs, and the Hausas domed huts resembling large bee-skeps. But what is more to our present purpose, each house was a thoroughly workmanlike production; the Ashanti houses, for instance, having their corner-posts, tie-beams, ridge-poles and rafters securely lashed with the split monkey-rope and the frame scientifically strengthened with diagonal struts and wind-braces. Roofs and walls were either tiled with broad leaves in the North Ashanti fashion or thatched with grass or palm fibre, and the efficiency of these little improvised houses may be judged by the fact that, though a heavy storm raged throughout the night, the morning found the village intact and all the villagers dry.

In reply to these instances of the superior efficiency, adaptability and self-helpfulness of pre-machine man, it may be said that these qualities are no longer required. That, since the wants of man are now fully supplied by machine production, there is no utility in individual initiative and versatility. This may or may not be true. I think

it is not. But we are here concerned with the character of the individual and the reactions of mechanism thereon; and since it is undeniable that individual capabilities atrophy when their use is suspended and individual activities are replaced by organized activities with extreme subdivision of labour, it appears equally undeniable that such atrophy will produce a change of mental character whose effects will be felt in social life at large. And such appears to be the case. The curious tendency to collectivist thought in social matters that is so conspicuous to-day, seems to be an extension from the collectivist conceptions of modern industry. The modern factory worker has been described as a "unit of production"; and so he, quite correctly, regards himself. The "hand," for instance, who tends one of the many intricate machines of a boot factory does not conceive himself as a maker of boots (which he is not) but as an infinitesimal unit of a great compound organization of men and machines by the collective activities of which boots are produced. No single boot is his own production, nor that of any of his fellow workers nor of any of the machines. Each of these is engaged in fractional and accessory activities the total product of which is so many boots. The character of those boots is uncontrolled by any conscious action of the separate workers, and if the latter try to conceive the production in terms of human volition, they can do so only by thinking of the "management," the directing and co-ordinating agency by which the nature of the product is consciously determined.

This habit of looking to the management for all co-ordinating activities and all initiative of action by which visible results are produced leads to analogous social conceptions. Society is conceived as an aggregate of units all engaged in fractional, half-conscious activities under the direction of the "State"; not as an aggregate of individuals each engaged in purposive activities and the conscious pursuit of his own welfare. "The State"—here meaning the Government—is thought of as the social equivalent of the Management of a factory, regardless of the entire lack of parallelism; of the fact that the Management creates the factory and possesses all the available technical knowledge, whereas the Government is created by Society and possesses less technical knowledge of human activities than the units which it is expected to control.

This state of mind is not confined to the worker. It

extends to the great non-producing class; for the consumer is also subject to the collective and centralized conditions of machine production and distribution. Formerly, the consumer, requiring a pair of boots of a particular kind, if not able to make them himself would apply to some person who possessed the necessary skill; and the boots would be produced by the visible, purposive action of that person. Nowadays he applies to a retailer; and if the particular kind of boot is not available, he accepts the statement that "that kind of boot is not being made now," and puts up with something less suitable. He conceives the producing agency in vague, remote terms, as a power self-existent and uncontrollable, like the tides and the seasons.

From this habit of thinking of the material necessaries and conveniences of life as being brought mysteriously into existence by some dimly-imagined, unseen agency, the transition is easy to that which invokes the equally dimly-imagined "State" to supply other necessaries and conveniences. In neither case is the agency visualized or rendered into intelligible thought. If a want is experienced and the industrial agencies make no move, the citizen's mind vaguely turns to the only other agency that he knows —the State—regardless of its capacity or incapacity for the appropriate action.

For instance, there has been since the war a shortage of houses. We have seen how the barbarian deals with a difficulty of the kind. He does not ask for a council of elders to discuss the situation, but he collects his neighbours and together they build the required houses. But, it is said, there has also been a shortage of bricks; and here we observe that bricks are conceived in the same vague manner as the other products of the Great Industry. For there has been no shortage of clay.

What would our own ancestors have done? Would they have gone houseless while the raw material of the builder lay all around them? And while the "State" filled tons of stationery with "Proposals for a Housing Scheme"? Assuredly they would not. If they could not have made their own brick, then timber or cob or wattle and daub or boulder and clay or whatever their neighbourhood afforded would have been used. They would no more have dreamed of asking "the State" to build their houses than to comb their hair. But the modern man, accustomed to rely upon

great organizations for the supply of all his needs, and quite unfamiliar with the idea of self-help, when the industrial organization breaks down, turns helplessly to the State; regardless of the fact that this agency which he calls on to house him shows so little capability of housing itself that it was still to be seen eighteen months after the cessation of war, squatting like some monstrous cuckoo in hotels, picture-galleries and other buildings created by individual enterprise and taken forcibly from their rightful owners.

It thus appears that those reactions of mechanism by which craftsmanship has been destroyed and replaced by organized labour yield as a by-product a marked deterioration of character in the individual with a loss of personal capability.

From this falling off in the quality of the individual as a result of the replacement of individual activities by collective activities, we may now turn to the prevailing states of consciousness resulting from the change. And here we may note how very insufficient is the general recognition of the truth that the normal activities of both men and animals are pleasurable activities. Yet that truth is most obvious, at least in respect of those primary and indispensable actions by which the existence of the individual and the continuity of the race are secured. Neither men nor animals consume food and drink from motives of far-sighted utility, but because the satisfaction of hunger and thirst yield pleasurable sensations. And the like is true of sexual activities. Not only are the preliminary actions of selection and courtship accompanied by the pleasurable satisfaction of an imperative impulse, but parenthood and child-nurture—the latter of which the advanced socialist would transfer to the State—also yield their pleasures, in the absence of which the needful actions would not be performed.

But it is not these primary physiological actions alone that are accompanied by pleasurable states of consciousness. The necessary occupations of primitive man were evidently enjoyed, as we may judge from the spirited representations of them in the remains of the cave men and from the fact that many of them—as hunting and fishing—have survived in the form of sports, or as recreations such as gardening, or as children's games. And the later industries exhibit the same phenomenon. The carved paddle of the Polynesian or African records a labour of love. An

old poet, whose name I forget, assures us that "It is pleasant for to swynken"; and this is the impression universally conveyed by old work. If we walk round an ancient church we can see the joy of the old workman in his labour exuding from every stone and timber. The lovingly-wrought foliage that wreathes the capitals speaks of sheer delight in the work, and we can almost see the satisfied grin on the face of the old wood-carver as he immortalizes his "merry conceited jest"—regardless of the sacred surroundings—in the imperishable oak of miserere seat or bench end. Some dull dogs have objected to the "levity" shown in these old carvings; the "funny faces" that leer down on us from the gloom of the vaulted roof, or defy us with protruded tongue as we approach the porch; the misdeeds of Reynard the Fox sympathetically recorded on the bench ends, or the inevitable matrimonial conflict slyly exhibited on the bracket of a monastic seat. But if such a caviller will turn his mental glance from the boisterous—and possibly indecorous—mediæval workman to the modern worker engaged perhaps in the endless multiplication of match-boxes, or the boot-factory hand who from year-end to year-end feeds leather (or other material) into a sole-cutting press, or the man who spends a lifetime boring holes in tooth-brush backs with a power-drill; he may find himself wondering whether the marvellous advance in industrial methods has done much to improve the conditions of life among the workers.

It is true that, even in the Middle Ages, craftsmen were not engaged exclusively in carving bench-ends or illuminating missals. Even then there were articles of common utility to be made. But to the making of these common things the same observation applies; the work was enjoyable and interesting. For the truth is—and everyone who has ever worked at any form of handicraft will endorse the statement—that of all human occupations the most delightful, engrossing and satisfying is the making of things, and this to a great extent irrespective of the nature of the thing made. The creation of a thing—the transformation of a mass of mere material into an actual object, whether useful or beautiful, is the one occupation that never palls or grows stale. Has not many an amateur craftsman who spends a dull life in office or counting house, enlivened by an hour or two in the evening at work in wood or metal or clay, considered enviously the delight of passing a lifetime in

these pursuits, exercising brain and muscle and creating things of use or beauty ? The joy of having and exercising real technical skill, of possessing a well-arranged workshop furnished with all needful appliances and materials, with the liberty to work all day and every day ?

But the pleasure of work is subject to certain indispensable conditions. In the first place, the work must be creative. The thing made must be really the work of the maker. The final achievement of a complete production is of the essence of the transaction. It would be quite interesting to make a tooth-brush from a bone and a handful of bristles. But there is no pleasure in boring holes in tooth-brush backs in readiness for the bristle hand. Then mechanical repetition must be avoided; for the " repeats " are not really creations; they are mere copies which lack the chief attraction of creative work—the design or mental conception which precedes the material realization. In the purely æsthetic crafts known as the Fine Arts these conditions are completely fulfilled; the painter or sculptor conceives, designs and executes his work throughout, and he is usually unwilling to repeat it even once and would certainly refuse to execute a series of identical replicas. And the same dislike of mechanical repetition and the desire to obtain interest by variation is seen in the work of the humbler craftsman. The appreciation by him of the conditions that I have mentioned is well shown in the inscription on a slip-ware tyg in the British Museum Collection; which reads: " Ann Draper: this cupp I [made] for you and soe no more. I. W. 1707." That is to say that this gift was to be unique: it should not be cheapened by repetition.

But these indispensable conditions of pleasure in work are precisely those which are most conspicuously absent in machine industry. For the essential conditions of machine production—conditions which alone make it economically possible—are extreme subdivision of labour and endless mechanical repetition. Ann Draper's lover made his " cupps " one by one on a potter's wheel and decorated them with slip which he probably ran out of a pot with a goose-quill spout. It was easier, and much more amusing, to make each one a little different from the last and to invent for each a variant of the decoration. His modern representative stands (with a row of other cup hands) at a long bench. Before him (and each of the others) is a

revolving disc—the " jigger "—and above this an iron arm —the " jolly "—ending in a sort of profile tool. A cup mould is passed to the workman, who places it on the jigger. As it revolves, he drops into it a ball of clay. The jolly then descends, squashes the ball of clay against the sides of the mould, thereby shaping the cup, and rises again. The workman removes the mould from the jigger. It is taken away to the next department; another mould is passed to him and by him placed on the jigger and under the jolly. And so on, day after day, *ad nauseam*. If his industrial methods are still more advanced, he can dispense with the jigger, the jolly and the ball of clay; he simply runs a row of cup-moulds alongside a tank of slip, when they are all filled simultaneously by an automatic siphon arrangement. Then all he has to do is to replace the full moulds by a fresh row of empty ones. And thus is his working day occupied.

Of course the cups thus produced are not at all like the one made for Ann Draper; and they certainly could not be inscribed " and soe no more," for they are turned out all alike, by the thousand. They are mere utensils, having a purely utilitarian function; affording no pleasure or interest to the producer and exerting no cultural influence on the user as did the personal and artistic works of the old potters.

But that which I wish to emphasize is the intolerable dullness, the dreariness, the soul-destroying monotony of this degrading attendance on a machine: this endless repetition by a rational being of one comparatively simple set of actions. It is not work in any proper sense; it is mere labour. And in occupations such as this are the lives of our working men mis-spent. The long hours which might be so pleasantly and usefully filled, are devoured by this sordid drudgery, yielding nothing but weariness and sullen discontent and piles of trash which one would be ashamed to look at if it were placed beside the work of the simplest village craftsman of a couple of centuries ago.

At the risk of some repetition, let us compare the conditions of the craftsman and the factory worker as productive or otherwise of pleasurable states of consciousness. And first as to the work itself.

Here we may note that the activities of the former are those which men deliberately pursue for the mere pleasure of performing them, apart from any consideration of profit.

Not only are there amateur painters, etchers, lithographers, sculptors and wood-carvers, there are amateur carpenters, potters, weavers, jewellers, clock-makers, goldsmiths, embossers, printers and a score of others who practise these crafts in their leisure time with no thought of any profit but the sheer delight in the occupation and the reward of the finished work. They do not shout for more pay and shorter hours, for they are richly paid in the pleasure of the work, and the hours of labour are all too short. Yet their conditions of work are unfavourable as compared with those of the professional craftsman; for the latter enjoys the advantages not only of a more convenient workshop, a better outfit of tools and a fuller supply of material, but of that perfect skill of hand—unattainable by the amateur —which makes every movement a pleasure and conducts the possessor by a short route to complete and masterly achievement.

Merely observing that no one ever heard of an amateur sardine-box maker or an amateur practitioner of any kind of machine production, let us glance at some of the evidences of pleasure and pride and satisfaction in work that the old craftsman experienced as he plied his calling. They are easy enough to find if we will but look for them with a sympathetic eye. Every piece of old work that has survived is eloquent in support of the poet's statement that "It is pleasant for to swynken." Ann Draper's cup is unique indeed, but so was every other slip-ware cup that came from the craftsman's hand. Even on the plain bowl or jar, the spiral trace of his thumb reminds us that he played by the hour with that most fascinating toy, the potter's wheel. We can see him exercising his wonderful legerdemain on the spinning clay, making it speak his thoughts with a touch of the infinitely skilful hand, designing and executing in a single action. We can see him trickling on to the leather-hard cup the little thread of creamy slip and guiding it into decorative shapes which he invents as he works; and we can see him rising before the dawn, eager to learn how the children of his brain have fared in the burning fiery furnace of the kiln. Compare his lot with that of the poor devil who "operates" the jigger and the jolly hour after hour, day after day, and year after year; or of the "wage-slave" who spends a dreary life in tending the automatic slip-tank.

Or take down the old turnip watch that hangs in the

pawnbroker's window and look at its finely-designed and pierced hands; open it and note how its plates are connected by tiny tulip-shaped pillars; and how back-plate and balance-cock—though internal and ordinarily hidden structures—are enriched with fanciful designs, amidst which the maker, with proper pride, has set his name and dwelling-place. See the latter, in his orderly workshop, engrossed in the work of creation; calculating the train, setting out the movement, delicately shaping each separate part, from the "great" wheel to the hair-like fusee chain, drilling the microscopic bearings and turning the tiny arbors on his lathe, or perhaps on the simple "turns"; and see him at last with the finished watch, in its gold or pinchbeck or tortoiseshell case, lying in his palm ticking cheerfully—the crowning reward of his long and pleasant labours. Contrast his conditions of work with those of the "unit of production" in a great watch factory which turns out its thousands of watches weekly (Heaven knows what becomes of them, since watches cannot be eaten; but perhaps the scrap-heap or the dust-bin might furnish a clue). Think of him in the great, cheerless, clamorous works, amidst an army of other "units" tending, day after day for long years, the machine that punches out wheels by the bushel or stamps out hands by the peck. Apart from the degradation of human industry and the vulgarization of its products, think of the intolerable dullness and stupidity of this occupation. For after all, this "unit of production" is a man who certainly has some kind of brain and possibly even an immortal soul: yet is he doomed throughout his life to be the attendant slave, the obsequious servant of a thing that has neither.

It is useless to multiply instances, for the principle applies universally. All old work contains internal evidence of the craftsman's interest and pleasure in his labour; evidence that he did the work willingly for its own sake and not merely because he was goaded by want and the prospect of wages. In old productions there is a mixture and an alternation of work and play which gives them their charm and personal interest. The abounding skill that made these productions so serviceable, so durable and strong, continually overflowed into enrichment and playful decoration. The pargetting on the house-front was the plasterer's reward for his "fat" and well-tempered plaster and its careful laying; the carved corner-post and fascia was the carpenter's *bonne bouche*, with which he "topped up"

the building of the solid frame; while the plumber's high spirits found vent in the battlemented rain-head and embossed down-pipe. In short, the normal and ordinary activities of man were—and still are where craftsmanship survives—pleasurable activities. They have a beginning and an end: a beginning in thought and contrivance; an end in complete achievement. The craftsman's working day is shortened by the engrossing interest of his work; his evening sweetened by the satisfaction of accomplishment.

And from these pleasant activities man is rapidly being ousted by the machine, which in return, adopts him as its slave and attendant, allots to him arduous, exhausting, disagreeable duties, bullies him, hustles him, drives him without cessation; sets him tasks that ask for no thought or initiative and yield no reward in achievement, and fills his working day with labour that is strenuous to exhaustion and dull to the point of mental paralysis.

We need not ask if the modern worker is happy. He leaves us in no doubt on the subject. Even now he is bearing down on the community in organized revolt, filling the air with demands and menaces. Day by day grow more peremptory his claims for a shortening of the hours of his toil, his drudgery, his servitude to the machine; for a further increase in the bribe that alone induces him to labour at all.

But even when these demands are conceded his condition is not essentially improved; for these remedies leave the essential evil uncured. No matter how much wages swell or working hours shrink, the conditions of his work remain fundamentally bad. He has no proper human occupation; he is still a wage-slave; and the machine is his master.

From the work itself we may pass to the conditions under which it is done; the general conditions of life of the worker. In the pre-mechanical age, these were, as we have already seen, in the main agreeable—or might be so if the worker chose. They were, in fact, the normal conditions of any unit of the population. The workers did not form a class apart, herded in special localities; they were distributed among the community and lived in fellowship and sympathy with their fellow-citizens. The surroundings of the working life, too, were pleasant. The small master craftsman carried on his industry in his own house, or in a workshop adjoining, attended perhaps by his family and looked in on by friendly neighbours. We can picture Ann Draper's

lover decorating his ornate tyg under the admiring eyes of a group of village gossips, or even of Ann herself. We can see the carpenter with his journeymen and apprentices, a little family group united by bonds of old and intimate acquaintance, framing up the new house in the village street or setting up the massive hammer-beam roof of the great tithe-barn, and getting no little satisfaction from the respectful comments of passers-by

Altogether the life of the worker was human and reasonable. It was conditioned by natural requirements. A special demand for some commodity kept the craftsman hard at work, but there were intervals when he could take life easily. A snow-storm or a gale meant long hours and strenuous labour for the thatcher, the tiler, the shipwright, rigger or sail-maker, and seasonal conditions bade the farmer and his men work with a will. But the incessant, monotonous grind from year's end to year's end had no place in the industrial scheme of the age of craftsmanship.

The conditions of life of the factory worker are totally different. They are inherently and incurably disagreeable. We need not go back to the bad old days of sweated labour in the cotton mills and other great works. Those evils were not inherent in the machine; they were curable and have been largely remedied. But there remain conditions which are inherent in machine labour and cannot be remedied. The dreary industrial town or district, the repulsive neighbourhood of great works, the chimney shafts, the refuse heaps and coal dumps, the hideous wharves and railway yards with their great power-cranes, grabs, overhead transport and all the sordid litter of the "Great Industry." And above all there is the factory itself, in which the worker spends his working life, a place in which the machine reigns supreme and in which the man is a mere unconsidered "unit of production"; a hot, malodorous place, filled with a deafening uproar and a maze of moving mechanism, amidst which the worker moves at peril of life or limb; where the army of other units may be composed of strangers or bare acquaintances, and where all these human units must labour frantically without pause to keep pace with the racing, tireless machines.

In contrast, too, with the easy-going free conditions of pre-machine industry, we must note the discipline and servitude that are inseparable from the organized labour of the factory. The latter is virtually a single mechanism of

which all the parts move in unison. The starting of the engine sets the whole in motion; and as the machines begin to move, so must their human attachments. Accordingly the latter are summoned by the peremptory clang of the bell or shriek of the hooter and their appearance or non-appearance duly noted by the timekeeper. The individual worker has no choice. His convenience cannot be considered and he can make no terms of accommodation. At a given moment the engine starts and the mechanism begins to move; and the laws of mechanism are inflexible.

Thus in the disposal of his time the machine worker has no liberty. At a given moment he is driven to work; for a given period he is held inexorably at his task; at a given moment he is released. His hours of labour are fixed by a will other than his own. And as with time, so is it with regard to place. He must live near the factory, and the neighbourhood of a factory is usually squalid and repulsive. But good or bad, he must accept the conditions as he finds them; and, at the best, they will inevitably be those of an industrial settlement where hundreds, and probably thousands, of families are aggregated in a relatively small area.

The change from hand work to machine work has therefore tended to replace pleasurable states of consciousness in the worker by states relatively unpleasurable; and this both in respect of the work itself and of the accompanying conditions of life. Let us now see how this change has affected the social status of the worker.

It is at once evident that the machine worker is not entitled to the same position as the craftsman. He is not a creator. He is not even a producer in any real sense. He is merely an accessory unit in a complex producing mechanism; and, apart from that mechanism, he has no worth. Clearly his status in society should not be equal to that enjoyed by the craftsman who is a complete and independent producer.

And it is not. Just now, the working man looms large, collectively, on the political horizon. He is an important and disturbing social factor. If we are politicians, we murmur his (collective) name in reverential accents with a tendency to flexion of the knee-joints. But individually, in spite of his great qualities, his social position is at the bottom. He ranks with the peasant. And from that position no political agitation can raise him.

How different was the status of the old craftsman! Look back at the Middle Ages, when shoddy production

was unknown; when real work was the only work, when universal good taste begot appreciation of fine design and skilful workmanship. In those days a craftsman was a great man -great in proportion to his mastery of his craft. If his abilities were great a splendid career was open to him; he might become a Master Craftsman, an associate of Kings, ranking with Nobles and Ministers of State; such a man, for instance, as Master Henry of Westminster, the King's Mason, or Master Alexander, the King's Carpenter; men who, for all their greatness, had served their time and could give the best of journeymen a lead; whose work, still surviving, we view to-day with awe as the creation of a race of giants.

Nor was this veneration for supreme skill, this reasonable, sensible recognition of the preciousness of great personal gifts, confined to the Middle Ages. Listen, for instance, to the exclusive and aristocratic Evelyn. "June 13, 1680. I was at the funeral of old Mr. Shish, master shipwright of His Majesty's yard here, an honest and remarkable man, and his death a public losse, for his excellent successe in building ships (tho' altogether illiterate), and for breeding up so many of his children to be able artists. I held up the pall with three knights, who did him that honour, and he was worthy of it." Or again to his reference to "My kind neighbour, young Mr. Shish, His Majesty's master shipwright of this dock" (April 17, 1683). From these entries (and a previous one of March 3, 1668, from which we learn that "The family have been ship carpenters in this yard above 100 yeares,") we get a pleasant sense of the just value set on real skill and of the "equality of opportunity" that existed when social position could be won by sound manual work. And the biographies of craftsmen show that these most desirable conditions continued right up to the beginning of the machine age; Thomas Chippendale, for instance, though a working cabinet-maker, appears to have associated on terms of equality with the gentry of the district in which he lived before coming to London; David Ramsay was not only clockmaker to James I. and Charles I. but was also Page of the Bedchamber to both; Thomas Tompion, whose shop stood at the corner of Fleet Street and Water Lane, was the associate of the leading mathematical philosophers of his time, especially of Hooke and Barlow, and his tomb in Westminster Abbey is evidence of the position enjoyed in the eighteenth century by a great clock-maker; while his appren-

tice and successor, George Graham, who is buried beside him in the Abbey, was a Fellow of the Royal Society and a member of the council of that august body. And the national importance of the great craftsman was paralleled by the local importance of the smaller man. His skill in the "mystery" of his craft earned the respect and deference of his fellow-citizens and gave him a status immeasurably superior to that of the machine-minder or factory hand of the present day.

But the consequences of the extinction of craftsmanship and its replacement by machine production, are not confined to the workmen; the accompanying changes in the character of the products of industry exert a very appreciable influence on general culture. For whereas the habitual contemplation of beautiful objects begets an appreciation of beauty and educates æsthetic judgment, so the habitual contemplation of ugliness produces, first tolerance and finally complete acceptance. We see this very clearly in the fashions of clothing and the accompanying bodily deformations. Monstrosities like the crinoline, the bustle, the pointed shoe, the hour-glass waist and the compressed foot, are first resented, then tolerated and at last accepted as the standard of correct dress or shape.

Of a like kind is the mental adjustment that has accompanied the replacement of hand-made by machine-made commodities. A new and degraded standard of taste has been formed. There has been evolved what we may call "the machine mind"; a mind which finds satisfaction in purely mechanical qualities, in geometrically regular form, in smooth finish, in perfect repetition. Vases, picture-frames and ornaments are demanded in pairs, to match exactly; furniture, china, buttons, book-bindings in "sets" of repeated and undistinguishable forms; woodwork is required to have the regularity of masonry; glass, pottery, metalwork, to possess perfect geometrical symmetry and surfaces free from all accidents and traces of workmanship.

Now if we consider the characteristics of the machine, we shall perceive that these qualities coincide exactly with its necessary limitations. The movements of the parts of a machine necessarily describe certain geometrical figures—chiefly straight lines and circles; and it is obvious that the effect of such movements on the material worked is the production of objects having straight edges, plane surfaces or circular sections. More complex figures can be produced

by the simultaneous movement of different parts of the machine, by means of cams, overhead motions and the like; but the resulting forms are still geometrical, and perfectly "true" If it is required to produce irregularly shaped objects, such as "carved" chair legs, an original model must be made by hand and reproduced by means of a copying-lathe or similar device.

Futhermore, the movements of a machine are recurrent. They form cycles of motion which recur over and over again indefinitely; and since each cycle of movement corresponds to an act of production and an individual product, it follows that each object produced must be an exact replica of those produced by the preceding or succeeding cycles. Unvarying repetition is an inevitable characteristic of machine production.

Here it may be asked, "What is the objection to mechanical repetition? Why should not similar things be identically similar?"

The answer to this question, involving the theory of repetition and pattern formation, cannot, in this place, be given at length. It may, however, be replied that, while repetition has important æsthetic functions, those functions are severely limited in their application. The things repeated must be suitable for repetition and must not be individually of great interest. Thus a row of Caryatids is less suitable than a row of Doric Columns, and a row of fighting gladiators or portrait statues would be obviously less suitable still. Then the things repeated must gain by the repetition, as is the case in serial compositions of simple units. For instance, a single bead may be of little interest, but when it is strung with a number of similar beads, a chaplet or necklace is formed the beauty of which is due to the unity of effect resulting from the serial repetition of similar shapes. I once saw on the neck of an African girl a necklace formed of the humeri of the marsh-tortoise, strung through the pierced heads, the beauty of which was entirely due to the repetition of these curious little crooked bones. And so with mouldings such as the Egg and Dart, Paternoster, Ball-flower, etc., and the units of a wall-diaper; the whole composition has a beauty which is not simply that of the units multiplied.

But even in these cases complete repetition is not always necessary or, indeed, desirable. A necklace of beads may be improved by an interesting variety in the units so long

as the general similarity is sufficient to preserve unity of effect; and a row of palings requires to be relieved from utter monotony by the periodic introduction of a principal member. The rigidly repeating ornament of the Greeks—usually severe and simple in character—commonly framed sculptural groups of intense interest. But the mediæval craftsman, less addicted to vivid sculptural tableaux, tended to make ornament more interesting by the avoidance of absolute repetition. The belfry columns of the Campanile of Saint Mark's, Venice, furnish a good instance. Viewed from a distance, when their function was that of " members " of a structure, they were so alike as to give an effect of complete unity and symmetry; from within the belfry, each capital was seen to have its own individual character, different from that of all the rest. And this combination of unity and symmetry with variety is constantly to be found in the remains of Romanesque, Byzantine and Gothic art. It is characteristic of mediæval craftsmanship, and indeed of good craftsmanship of all ages; and it is utterly unattainable under the conditions of machine production.

To sum up the conclusions from this digression: Repetition has an æsthetic function which is strictly limited to the evolution of serial compositions. Otherwise it is æsthetically bad; and the taste that demands it is bad taste. The desire that the chairs of a suite shall conform to a general design is reasonable enough; but the demand that the carved, painted or inlaid ornament shall be alike in all indicates æsthetic obtuseness.

In other respects, too, the mechanical bias which the modern mind has acquired by the continual contemplation of machine work is evident. The mechanical, regular work of the circular saw, the power-plane, the moulding-machine, is found more pleasant than that of the wedge, the adze and the gouge. The fundamental æsthetic truth that the work of every craft should be dominated by the " genius " of the material and that of the appropriate tool and process, the limitations of which it should frankly accept, becomes obscured. That wood should look fibrous and tough and should exhibit its lines of growth and the traces of the keen-edged tool; that pottery should suggest the plasticity of the clay, glass its ductility, metal its malleability and strength; are considerations that tend to be forgotten in the presence of the machine, which—having no " genius " but that of geometrical motion and endless repetition—

ignores all limitations of material and impresses its own character impartially on all its products.

An instructive instance of this disregard by mechanism of the genius of material is the fine memorial erected in America to Mrs. Eddy. The material is white granite and certain portions are enriched with masses of floral ornament, delicately and freely executed with the pneumatic diamond drill. With this mechanical aid, the intractability of the material is completely overcome; but with this conquest of the distinctive hardness, the character of the material is lost. The carving might as well have been in alabaster, soapstone or clunch. If we compare this work with an early Egyptian granite statue—worked with bronze tools—the vital difference is manifest. The modern work is the work of the pneumatic drill—the material has no significance; the old work, majestic in its massive simplicity, its rounded contours, its ponderous repose, seems the very personification of granite.

The mechanical bias which renders the mind obtuse to the beauty and interest imparted to material by appropriate treatment, which values as perfections qualities due to the limitations and defects of the machine, and deprecates as imperfections the variety and individual character imparted by the hand of the craftsman, represents a real and serious loss of æsthetic culture. The mind which is thus insensible to the human element in the products of industry, which is satisfied and even pleased with base and meretricious imitations of human work and is impressed by mere regularity, smoothness and polish, has lost touch with one of the noblest motives of human action—the desire to create things of lasting beauty and perfection; a motive to which has been largely due the advance of essential civilization.

The extent and completeness of this atrophy of the æsthetic faculty is deplorable. Not only is the average man totally obtuse in this respect; the mentally undeveloped state, in an æsthetic sense, is evident among the governing class and even among scholars and men of learning. The standard of æsthetic culture prevailing at the great universities may be judged by the fact that clergymen come from them in a state so uncultivated that, when they become the custodians of mediæval buildings and their contained treasures, they often do irreparable damage by ignorant alterations and "restorations" of the fabric, by tearing down ancient woodwork and even by exchanging priceless mediæval plate

for common commercial silver. But perhaps the most striking commentary on the prevailing standard of taste and culture is that furnished by the recent vicissitudes of our great museums and Art galleries. The treatment of these vitally important centres of culture and education suggests that the "authorities" conceive these institutions, in the bucolic manner, as places to which tired nursemaids conduct refractory children to keep them amused. Their closure during the war may have been unavoidable. But more than a year after the signing of the armistice the principal museums and galleries were still partly or wholly occupied by Government departments. Picture palaces, music halls, theatres, clubs, had never been closed; but centres of culture such as the National Gallery of British Art and the South Kensington Museum were still not available for use; and to pile Pelion on Ossa, the latter—the greatest artistic treasure-house in the world—was, in part, at least, closed to the public in order that its galleries might be occupied by the clerical staff of the Board of Education!

Such a state of affairs could not have occurred if a reasonable standard of culture had existed among the educated classes. But the truth is that, by the immense majority of men, the æsthetic is regarded as the trivial. Objections to public utilities, such as overhead tram-wires, girder bridges or power stations, on account of their ugliness would be listened to by the "practical man" with impatience. To him, Art, Fine or Applied, is a trivial "side-show" which cannot be allowed to interfere with utility or profit; and the outlook of the "practical man" is that of the overwhelming bulk of the population. If a mediæval city gate interferes with the passage of tall tramcars, it is promptly pulled down. The "necessity" is regretted, of course, but the regret is not strong enough to suggest any means for preserving the beautiful structure. The sacrifice of the most trivial convenience for the sake of attaining or preserving beauty would be regarded by the average man as unthinkable. And this indifference to, and indulgent contempt of, æsthetic considerations is the measure of the loss in culture that the modern man has sustained by the intrusion of the power machine into the field of human industry.

Allied to this lowering of æsthetic culture is the trait known as vulgarity. The exact nature of this mental phenomenon I leave to the psychologists to determine. To the plain man it represents a combination of undignified

pretentiousness with insincerity, an ostentation of qualities really the reverse of admirable with an indifference to those that are essentially great and noble. It is almost entirely a modern trait and is confined to civilized man. The only ancient peoples who exhibited it on an appreciable scale were the Jews and especially the Phœnicians; of whom the latter are interesting by reason of their curious anticipation of modern commercial methods. With their avidity for profit, their statues in the round, worked only on the visible parts, their imitation jewels and their meretricious products, overlaid with cynically eclectic ornament (for export to the unsophisticated barbarian), they foreshadow in a remarkable manner some of the industrial and commercial activities of the present day.

But although vulgarity was possible under ancient conditions, its occurrence was rare. Under modern conditions it is becoming painfully widespread. We find it in the daily press, in books, in public speeches, on the stage and (in lethal doses) in the kinema theatre; in the habitual statement of effort and achievement in terms of money and in our undignified, slangy speech, with its ostentation of trumpery cleverness and its real inefficiency for purposes of exposition.

But no proof is needed that the characteristic vice of modern Europe (and especially England) and America, is vulgarity. What is to our present purpose is to trace its connection with mechanism. And such a connection becomes obvious on examination. Machine production of commodities is, by its very nature, largely pervaded by vulgarity. Excluding the manufacture of machines themselves, which are genuine machine products, the process of mechanical production is based upon an essentially vulgar idea—that of imitation and the substitution of a counterfeit for a more valuable original product. For it must be remembered that the great bulk of machine-made goods are imitations of hand-made goods. Machines cannot originate; they can only copy; and when the copies are made to resemble hand-work beyond the needs of utility, such imitation amounts to a vulgar imposture, even though it fails to deceive. Thus hammer-marks on stamped metal vessels which have never been touched by a hammer, false bands stamped on the backs of machine-bound books, gouge marks on stamped "wood-carvings," water-marks made by the dandy-roll on machine-made paper, or, still worse,

imitation deckle edges to ape the very defects of the hand-worker's mould; all these are essentially vulgar devices, false pretences by which the cheap products of the machine are impressed with what purports to be the hall mark of the more costly work of the skilled human hand. So, too, the imitation autograph letter, forged from an original by photo-lithography and run off in thousands, and, yet worse, the sham type-written letter, printed from type which minutely reproduce all the unavoidable ugliness of type-writer lettering, even to the mesh of the ribbon, and in ink which exactly copies that of the type-writer; go beyond mere vulgarity, for there is an admitted intention to deceive the recipient of the letter into the belief he has received a personal communication.

It is evident that the habitual use of methods such as these, which contrast so disagreeably with the straightforward dignity of the old-fashioned craftsman, cannot but affect unfavourably the current standard of conduct and manners; and it will surely appear more than a chance circumstance that the growth of vulgarity should coincide in time and place with industrial conditions associated with such methods.

Another striking reaction of mechanism on the character of the individual is the loss of certain forms of culture and ability by the transformation of the operator into the spectator. When the machine does for men easily and cheaply what they formerly did for themselves, such transformation naturally occurs; and with it occurs a loss of quality in the individual. The activities connected with music furnish a good instance.

Formerly, when a man wanted music he usually produced it himself. The capacity to sing or play some kind of instrument was almost universal, and music was to a very large extent domestic. Old collections of instruments exhibit numberless small, portable forms, such as the flutes, flageolets, recorders, the little sordino, or pochette—a diminutive, slender fiddle, usually carried in a leather case, which gentlemen were accustomed to slip into their pockets when they went to dances or singing parties—or the scheitholz, a tiny zither of the same narrow shape and used for the same purpose. A "chest of viols" was an ordinary item in the equipment of a gentleman in the seventeenth century; and the literature of that period is full of references to music of a simple, informal, domestic character. Pepys

refers to his boy as lying in bed, playing his lute; Mrs. Pepys sang (not very well, I suspect) and played the flageolet; while the volatile Samuel himself not only experimented on numerous instruments but essayed original composition. So, too, "The Compleat Angler" abounds in references to music of the same simple, vernacular character but implying an appreciable amount of musical skill and taste.

A certain amount of change in the musical character of the population is clearly due to the normal evolution of instruments. Just as the violin has ousted the whole family of viols, excepting the double bass, so the highly developed pianoforte has displaced most of the portable instruments, and the wonderful perfection of the modern organ threatens the orchestra. But it was left for the purely mechanical instrument to exterminate the performer. Now that the pianoforte can be "operated" by a pneumatic automaton, no human musician is required; and even in the case of the gramophone, it would seem that the rôle of the performer in the manufacture of music will presently be similar to that of the craftsman in the manufacture of furniture, or that of the film actor in the manufacture of plays. He will produce the original model from which the machine will turn out copies by the thousand. And to the rest of the population will be allotted the rôle of spectator, or passive consumer.

It may be said that the old vernacular music was probably, of a poor average quality and that the music executed by skilled musicians and distributed by the gramophone disc or piano-player rolls is superior.

To this there are two obvious rejoinders.

Whereas, in the first place, it may be admitted that the actual executive skill of the average "domestic" musician may not have been great, and that the professional performer whose work is reproduced mechanically is usually a skilful executant, a like comparison does not apply to the matter performed. Most of the old music which has survived is of quite good quality, while the bulk of that recorded on gramophone discs is of an utterly debased character. The machine is, as might be expected, itself an agent of debasement. For here, as always, the law obtains that the nature and needs of the machine dominate production. The machine is the one immutable factor, to which the other factors must be adjusted. And so we find

that even where good music is reproduced, the reproduction is accompanied by a species of Procrustean adaptation to make it fit the machine. Compositions of excessive length are lopped to the required dimensions. Entire movements or repeating passages are omitted from sonatas and symphonies, or attractive "bits" selected from classical compositions. In practice, it may be said that classical works are almost unobtainable in an unmutilated form on gramophone records, and even "music-rolls" are commonly edited by the manufacturer. Moreover, the industrial law that colossal (machine) production is economical production acts unfavourably on culture. The works selected for reproduction are those that will sell in gigantic quantities; and in the present state of taste these will not be the masterpieces of the great composers. As "best sellers," the Pastoral Symphony or the Sonata Pathétique are easily vanquished by "Stop yer ticklin', Jock!" or "The Hard-boiled Egg."

Thus, apart from the questionable taste of the average manufacturerer and distributor, the laws of mechanical production tend to the dissemination of debased music and to the lowering of the musical culture of the individual.

But, in the second place, the comparison of the music produced respectively by the amateur and professional, is not quite relevant. We are dealing with the culture of the individual; and surely the standard of musical culture implied by the habitual personal exposition of music—even relatively unskilful exposition—is immeasurably higher and more real than that implied by mere passive listening to the "potted music" of the gramophone and pianola. And the undeniable fact is that the musical culture of the average individual of to-day contrasts very unfavourably with that of his ancestors of the pre-machine age. We are impressed by this when we compare the old catches and roundelays, the charming songs of Purcell and the older writers and even the tuneful popular songs of the earlier Victorian period with the "rag-times" and other musical inanities of to-day. It was especially impressed on us during the war by the dreadful sounds produced on the road by our soldiers—particularly the later and younger levies—by the affection of the latter for bugle bands, mouth-organs, and other noise-producing appliances, by their love of mere din and the impossibility of inducing them to adopt tuneful, marching songs. Often, as I have ridden or marched

immediately behind a deafening bugle band, have I recalled the quaint remark of Samuel Pepys: " I had thought there would be musique, but there was none; only trumpets and drums, which displeased me."

But not only in music do we note the failure of personal initiative; the growing tendency to mere spectatordom, with dwindling of the appropriate culture. It is a universal tendency. The crowds that gather at the doors of the myriads of picture palaces, waiting patiently for admission, furnish pathetic testimony to the prevailing mental dulness. These people are waiting to be amused. When admitted, they will sit passively and enjoy a sort of amusement bath; they will laugh uproariously when the well-padded fat man falls (to the sound of a drum) and will be thrilled when the tragedian, grimacing like an agitated baboon, discovers the finger-print (sticking up like a large wart, so that the spectators at the back can see it distinctly) on the leg of the sofa. The pitiful quality of the entertainment affects them not at all. They only want to sit, smoke a " fag," or eat sweets and be amused. The passive habit extends even to sports and games, thousands of spectators gathering to watch the performances of professional players of cricket or football.

Of the mental torpidity evidenced by this desire to be amused without personal effort, there are several explanations. Among manual workers it is probably due very largely to the mental exhaustion produced by the strenuous but intolerably dull and monotonous labour associated with factory work and the tending of high-speed machines. Again, among these and others engaged in pursuits ancillary to machine production, the lack of intelligent, interesting occupation, such as is furnished by the practice of a craft, must tend to create dulness of mind; and then there is the fact that the means of passive enjoyment are provided by the kinema, the gramophone, pianola, etc. In all cases, demand and supply of passive satisfactions are associated with mechanism, and the corresponding personal deterioration must be regarded as one of its reactions.

The last group of these reactions of mechanism which we shall notice is that connected with the vast increase in the facilities for locomotion.

That this increase is associated with a change in human character is generally recognized, though the nature of the change is perhaps not completely grasped. Thus, a friend,

in answer to some observations of mine on the careful and elaborate treatment of certain old domestic buildings, protested impatiently: "But we've no time for that sort of thing in these days of speed and high pressure. Think of our railways, our motor-cars, our steamships; of the way we get about and the time we spend in travelling!"

Now this protest—ludicrous as it was, for it amounted in effect to saying, "Think of the time we spend in the use of time-saving appliances"—does really express an important truth. Of all the reactions of mechanism on man, there have been none greater than those produced by locomotive mechanism. Let us consider them in their relation to the individual.

In pre-machine days the immense majority of men lived relatively stationary lives. Each man belonged to a definite locality, more or less circumscribed according to his occupation, in which he had been born, in which commonly his ancestors had lived and from which he seldom travelled far afield. His social relations thus had much less extension than those of the modern man. But they had much greater intension. His surroundings were permanent, unchanging and usually inherited. He knew them all intimately; the country-side, the towns and villages, the fauna, the flora, the soil, the climate; even the population, within the limits of his own environment, was composed of personal acquaintances, friends or relations. Thus the permanent and intimate relationship to a limited environment resulted in a body of knowledge concerning it, the possession of which markedly affected the character of the individual. But it also resulted in adjustments of a very perfect kind, which, in addition to their effect on the local community, tended to develop a particular type of individual. For it is evident that in a small area in which most persons were known to one another and the prevailing conditions known to them all, mutual help and service were possible as they could never be in large areas peopled with a shifting population of strangers.

In respect of the worker, too, my friend was undoubtedly right. The stationary life in a relatively unchanging environment, the freedom from distractions of change of place and contact with strangers were conditions favourable to the careful, patient, concentrated work that distinguishes the productions of the pre-machine age from the hurried, hasty, incomplete work of "these days of high pressure."

The absence of violent external stimuli made possible the generation of powerful stimuli from within, and indeed it is to be noted that even now the execution of any work requiring a sustained, concentrated effort, is usually associated with a stationary condition and a restricted environment. The student is stationary in his study, the investigator in his laboratory, the painter in his studio, the craftsman in his shop. The great works of our own time do not emanate from the highly locomotive "man of action."

And not only did the stationary life and the limited environment encourage concentrated and sustained activities; they reacted indirectly on the products of those activities in association with the personal characters of the producers. The builder, the joiner, the shoe-maker, lived with their works and were witnesses of their permanence and suitability. The enduring excellence of their productions was a satisfaction in itself apart from the credit and public esteem that it yielded, while a piece of manifestly bad work was a standing reproach to the worker and ultimately a pecuniary loss.

This interest in and acceptance of responsibility by the worker for the quality of his productions not only made for good craftsmanship but it gave to the craftsman himself a dignified and noble outlook. He staked his reputation on his work, and he valued his reputation above everything else. How different is the outlook of the factory hand who labours at mere generalized "production," or that of the manufacturer who delivers his goods, with cynical indifference to their quality, into a "market" composed of unknown and unconsidered consumers!

But the mental state associated with the stationary life was not only conducive to earnest and sustained work; it was a wholesome, healthy and agreeable mental state. The freedom from hurry and pressure made for sanity of mind and bodily health. For those who, like the friend whom I have quoted, refer contemptuously to the "good old leisurely days" are perfectly right. Paradoxical as it may seem, the increased facilities for locomotion have robbed man of his leisure. In place of the old, quiet, unhurried life has come a condition of incessant bustle, strain and pressure, an orgy of restless movement. Let us consider this change and note its factors and its effects on the individual.

Under the older conditions a man was either working,

playing or resting. There was no intermediate state, nor was there any time taken from play or rest excepting that devoted to work; and in the work itself, though hours were long—commonly by free choice—effort sustained and attention concentrated, there was yet what we may call "interstitial" leisure; the effort was related to the work itself and not a rigid time factor. Under modern conditions to the time absorbed by work, play and rest must be added that spent in travelling; or rather, it must be subtracted from them, since the length of the day cannot be increased even by Daylight Saving Acts. But inasmuch as time spent in travelling is time wasted, and the additional travelling is the product of the increased facilities, it results that these facilities actually diminish the amount of time available for work, play or rest.

The explanation of this apparently contradictory result is that the effects of any new time-saving or labour-saving appliance are apt to be estimated in relation to the conditions existing at the time of its introduction; whereas its actual effects are manifested in new conditions created by itself. Labour-saving appliances do not ordinarily save labour in the sense of conferring leisure; they increase production with the same labour or they diminish employment with the same production. And so with time-saving appliances; the time which they save does not represent leisure gained but an increase in the amount of work done by a given individual. The new appliance is a factor to which other social factors automatically adjust themselves, producing a new equilibrium differing little from the old excepting in terms of speed.

This is specially true of transport appliances. Locomotive facilities first enable a man to live at a distance from his work, then compel him to do so. Specialized business and residential localities become established and gradually draw farther apart. The city man now, by compulsion, lives in the suburbs or in the country, the typist, the clerk, the shopman and other workers in the business quarter are driven farther and farther from the scene of their activities and become dependent on organized transport for conveyance thither from their homes. And each spends from two to four hours daily in the use of these appliances; time which has to be subtracted from that available for work or leisure, a part of which he continually seeks to recover by the use of yet more rapid transport—fruitlessly, since the

increased speed of the new appliance does not abbreviate the time but merely increases the distances travelled.

Thus it has happened that the progressive advance in efficiency of locomotive appliances, instead of creating leisure has devoured it. And this consumption of leisure by locomotion has produced a change in the habits of individuals accompanied by a corresponding change of personal character. It has developed a locomotive type of man, distinguished by physical restlessness, impatience of stationary activities, a tendency to continual rapid movement and an obsession of speed and time-saving; in short, what Americans call the "hustler." Probably his condition is largely due to the use of appliances such as trains and trams which have rigidly definite starting times to which all his personal arrangements must perforce be adjusted, which must be constantly borne in mind and thus become a source of anxiety and distraction. But apart from the effects of time-tables, the habitual use of rapid transport appliances begets the speed habit, as we may gather from the excited crowds that fight and scramble for seats in the motor omnibuses or the wild-eyed men and women who race after them amidst the surging traffic. The inveterate motorist is a typical case of the speed-habit. He cannot walk. He has no patience for so slow a mode of progression. He has accepted a new standard of speed even for pleasure travel. That a country walk yields pleasant and healthful exercise with opportunities for seeing and tasting the charms of meadow and woodland, is nothing to him. He is possessed with an irresistible impulse to "get on." Like a cat, who if she is inside a room mews to be let out, and if she is outside mews to be let in, so, wherever he may be, he wants to be somewhere else and to get there as quickly as possible. It is mere restlessness engendered by the habit of rapid movement from place to place; a neurosis, in fact, akin to the "habit spasm" of the man who cannot keep his muscles still.

Another somewhat paradoxical result of the increasing efficiency of transport appliances is the threatened extinction of the traveller. His decline and fall have been coincident with the development of locomotive mechanism; and each increase in speed and facility has destroyed a certain amount of the quality of travel; and the latest advance—the aeroplane—has dealt the final blow. The

age which has produced the locomotive type of man has consigned the traveller to the limbo of the obsolete.

In the pre-machine period, notwithstanding the normally stationary character of the population, a good deal of travelling occurred. Apart from the professional wanderings of mariners, pedlars, strolling players and musicians, the migrating of young journeymen on completion of their apprenticeship, voyages and journeys undertaken of necessity by men of business and affairs, a considerable amount of voluntary travel took place for the pleasure of change, adventure and the satisfaction of curiosity. In earlier times the religious pilgrimage and, later, the educational "Grand Tour" introduced men of an enquiring turn of mind to foreign places and peoples—"Their manners noted and their realms surveyed"—and furnished the excuse for an enjoyable jaunt.

And even the stay-at-home folk travelled, in a sense, vicariously. Their interest in foreign peoples and strange lands was intense. Travellers' tales were listened to with avidity and Voyages and Travels were among the most popular forms of literature. Even the fiction and drama of the older type, is pervaded by an atmosphere of travel and adventure. From the "Canterbury Tales" to "Pickwick" and "David Copperfield" the whole range of English fiction is a moving procession of travellers, on foot, on horse-back, on the stage-coach or on board ship. The novels of Defoe, Fielding, Smollet, Marryat, Dickens, Stevenson, shared the popular favour with the more or less veracious records of travellers from Mandeville to Bruce and Mungo Park.

The change that has taken place even within the last half century, in this respect, is profound. The popularity of the book of travel has died out almost completely, and a glance at the current fiction shows that it deals almost exclusively with urban interests. Adventure stories are taboo alike by editors and publishers and are commonly dismissed contemptuously as "Boys' literature." The "locomotive" type of man feels no interest in strange lands or strange peoples; his attention is focussed on his own urban surroundings. And in America, where the type is still more locomotive, the change is still more advanced. Thus in the information given in the "Artists' and Writers' Year Book" as to the kind of work demanded by American editors we find such directions as these: "*Scenes :* U.S.A.

Time: the present"; "Setting most preferable Western, *i.e.* Pacific Slope" (this from a San Francisco magazine); "all matter must portray Western U.S. life, thought and activities" (a Chicago magazine). The readers are apparently totally uninterested in anything outside their ordinary environment; and this appears to be characteristic of the modern type of man.

It seems a strange phenomenon; but yet it is quite easily explained. In the first place, the new transport has by its tendency to standardize places and peoples throughout the earth, destroyed a great part of the incentive to adventurous travel; even as the municipality which installs an electric tram service to some beautiful locality in order to "Bring the rural solitudes within the reach of all," merely succeeds in destroying the rural solitudes. In the second place, each new form of transport appliance involves a diminution of the contact of the traveller with the region through which he passes. The pedestrian wayfarer is the traveller *par excellence*. He sees everything and everybody. He lodges at inns or cottages, buys food, talks to the natives and makes himself at home in the country. The coach traveller sees less, but still he makes an appreciable contact. The railway or motor-car traveller sees little, and makes no contact with the country excepting at his halting places. The aeroplane traveller sees nothing but clouds and a generalized earth beneath him.

When I lived for a time at Bontúku (a city in the interior of West Africa) I used to meet native traders who had strolled thither with their little caravans from Hausaland, Timbuktu or the shores of the Mediterranean. Those men were complete compendia of the geography of Northern Africa. They knew intimately every country through which they had passed; its aspect, people, language, flora, fauna and productions. Their journeys often occupied months. Now the tourist can perform the same journey by aeroplane in a few hours, sitting at his ease in the fuselage. But he might as well travel in a cask or a packing-case, for he will have seen nothing. The one man is a real traveller; the other is merely a person who has changed his geographical position.

Thus the increased facilities for locomotion, while they have robbed travel of much of its interest and most of its adventurous and romantic quality, tend to induce in man an indifference to that quality, a lack of interest in

the remote and an outlook that is in some respects more parochial than that of the relatively stationary pre-machine man.

Summary of the Reactions of Mechanism.

In view of the length of the foregoing section and the diversity of the phenomena examined, it will be advantageous to summarize briefly the results of our investigation. We have seen that the Reactions, or indirect effects, of the existence and development of Mechanism are of four kinds: 1. Reactions on itself; 2. Reactions on the Human Environment; 3. Reactions on Man Collectively; and 4. Reactions on Man Individually.

1. The Reactions of Mechanism on itself are manifested in three directions:

(*a*) In a tendency of mechanism to beget further mechanisms, first, by a purely evolutionary process or by the continuous advance of mechanical knowledge; and secondly, by the mechanism becoming itself the agent of the production of new forms which could not be produced without it.

(*b*) In a tendency of the Power-generating machine to beget Power-consuming machines—machine tools and producing machines.

(*c*) In a tendency of both types of machine to evolve in the direction of increased automatism with a correlative elimination of the human factor.

2. The Reactions on the Human Environment are manifested (A) on the Primary or Natural Environment and (B) on the Secondary or Induced Environment.

A. On the Natural Environment of Man, mechanism has reacted (1) By producing a general deterioration of those regions which have come under its influence; a destruction of natural beauty and the creation of areas of devastation.

(2) By the creation of great industrial towns, adjusted to the needs of the machine but unadjusted to those of the multitudes of human beings who are compelled to live in them.

(3) By inducing a gigantic and wasteful consumption of the natural resources, both capital and replaceable, whereby the available wealth of the world is appreciably reduced and there is set up a condition relatively unfavourable to posterity.

The general tendency of these reactions is to reduce the suitability of the world as a habitat for man, *i.e.* to transform a favourable environment into one less favourable.

B. On the Secondary Environment Reactions are manifested in two groups: (1) Those of the Locomotive Machine, and (2) Those of the Stationary Machine.

(1) The principal reaction of the Locomotive Mechanism on the environment is an apparent contraction of space and a reduction of the effects of distance. This tends to result in an increasing uniformity in the appearance of places and in the suppression of local characteristics; and this uniformity extends to natural products, which become available in regions far distant from their place of origin. Facility of transport tends to be accompanied by ever-increasing centralization of the means of locomotion, by the loss of their control by individuals, by insecurity of their possession and by compulsion as to their use.

(2) The Reactions of the Stationary Mechanism on the environment are chiefly those which affect Industry and its Products.

Reactions on Industry:

(*a*) Inasmuch as the Power-generating Machine tends to supersede manual power and the Power-consuming, or Producing, Machine tends to supersede manual skill, the tendency of mechanism as a whole is to supersede Man as the agent of production and to exclude him from the domain of Industry.

(*b*) The growth in power and efficiency of machines tends to the centralization of manufacture with resulting extinction of small local industries.

(*c*) The extinction of individual or small industries and their replacement by great factories involves the disuse of simple and inexpensive means and appliances and their replacement by complex and costly forms.

Reactions on the Products of Industry:

(*a*) Great increase in the quantity of commodities produced with (normally) a corresponding decrease in their cost.

(*b*) A tendency to deterioration of commodities in respect of the quality of material, workmanship, durability and beauty.

(*c*) Centralization of production with reduced adaptation of products to individual or even to human needs.

(*d*) A tendency to adjust the character of commodities to the necessities of the producing mechanism rather than to the needs of the consumer.

(*e*) Repetition, uniformity and lack of interest and character in commodities.

The Reactions of Mechanism on Industry and its Products are thus, in the main, unfavourable. The only advantages which machine production possesses as compared with hand production is the greater bulk of commodities produced and their relative cheapness; both of which advantages are largely discounted by the inferiority in quality and durability. Moreover, these advantages are not inherent in machine production; they are only conditional. Since the war both have been in abeyance. The supply of commodities is inadequate and their price—but not their quality—equal to that of hand-made goods. If the machine worker continues to demand, and receive, the payment of a skilled craftsman, the cheapness of machine production will not reappear; and then only its disadvantages will remain.

3. Reactions on Man Collectively:

(*a*) The chief reaction of mechanism on man collectively is the transformation of the working class from a discrete body of skilled men of a relatively high type, living under fairly good conditions and fairly satisfied therewith, into a concrete body largely composed of comparatively unskilled men of a relatively low type, living under conditions which are incurably unfavourable, with which they are separately and collectively dissatisfied.

(*b*) As a consequence of the above change, the creation of a great organization—The Federated Trades Unions—whose members conceive their interests to be antagonistic to those of the rest of the community and whose political activities are of an anti-social character.

(*c*) The appearance of an International movement—Syndicalism—of which the declared purpose is the destruction of the existing social order by revolutionary methods.

(*d*) Transfer of the initiative of production from individual craftsmen or small bodies of skilled workers to a financial operator—the Manufacturer—controlling automatic machines and large bodies of relatively unskilled workmen.

(*e*) The chronic disturbance of social order and economic stability by the periodic conflicts of the employers of labour with the organized workers.

(*f*) The formation of anti-social organizations (combines, cartels, trusts, etc.) the purpose of which is to control the supply and prices of commodities.

(*g*) The accumulation by a relatively small number of men of enormous wealth by means of which they acquire the power to modify and control the conditions of life and even the mental character and conduct of large numbers of their fellow men.

(*h*) The transfer of large portions of the population from the producing to the non-producing class.

(*i*) Unemployment.

4. Reactions on Man Individually:

(*a*) This group of reactions, like the last, has as its central feature the extinction of the craftsman and his replacement by the machine and the factory hand. And this, in effect, amounts to the transformation of the population from one consisting principally of skilled men into one consisting largely of unskilled men.

(*b*) Resulting from the preceding change is a change in the character of the individual; a lack of " handiness " and self-helpfulness begets a lack of self-reliance which manifests itself in his social and political outlook. He becomes willing and even anxious that his personal activities and duties as a citizen shall be taken over by the State.

(*c*) Another result of (*a*) is a general decrease in pleasurable mental states, consequent on the exchange of the pleasant, varied and interesting work of the craftsman for the disagreeable, monotonous and dull occupations of the factory hand.

(*d*) A further result, producing a further decrease in the pleasurable states of the working class is the exchange of the relatively good, comfortable and human conditions of life that are possible to the craftsman for the inherently bad conditions to which the machine worker is subject: life in an industrial district; working hours spent in a factory; and necessary loss of liberty and subjection to rigid discipline.

(*e*) Yet another result is a lowering of the social status of the worker and a loss of the equality of opportunity which existed in the age of craftsmanship.

(*f*) On the æsthetic culture of the average individual mechanism has reacted unfavourably by generating a

mechanical bias, a liking for qualities which are æsthetically bad but mechanically unavoidable. And similarly, by accustoming him to meretricious and debased products and especially counterfeits of hand work, it has engendered æsthetic obtuseness and vulgarity of taste.

(*g*) A further reaction on the individual is the loss of culture resulting from his transference from the position of an executant to that of a spectator, or listener, especially in the case of music.

The reactions on the individual of the locomotive mechanism include:

(*h*) A loss of the complete social adjustments which are possible in areas inhabited by a stationary population.

(*i*) An influence unfavourable to sustained, concentrated effort.

(*j*) Reduction of leisure and increase in the amount of time spent (and wasted) in travelling.

(*k*) Evolution of the locomotive man or "hustler" and production of a tendency to restlessness and unpurposive strenuousness.

(*l*) Diminution of the interest of travel and lack of curiosity respecting remote regions and their inhabitants.

Thus, taken as a whole, the reactions of mechanism have not been favourable to man. On his environment the influence of the Power Machine has been markedly injurious; on Industry its effects have been disastrous, degrading the worker and debasing the products of his labour. On Society its reactions manifest themselves in social conditions which are undesirable as to the present and menacing as to the future; while the individual members of the social aggregate have been unfavourably affected in culture and in general well-being.

And here for the present we will leave mechanism, reserving the final determination of its place in Social Evolution until it can be considered in conjunction with the other factors.

Section III.—Social Pathology

CHAPTER IX

SOCIAL PARASITISM

THE man whom we may regard as the normal unit of a community is one who effects his own complete maintenance by the exercise of some productive activity: who obtains his subsistence either directly from his environment or from his fellow men in the form of voluntary payment for value received in commodities or services. But at all stages of civilization, even the most primitive, societies have been infested by a type of man who has sought to extract a subsistence from his fellow men without offering in return any equivalent value. Such a man we speak of as a Parasite, implying an analogy between him and the lower organisms so named; and, as the analogy is a real one, it will be useful before considering the phenomena of Social Parasitism, to take a brief glance at those of Parasitism in general.

We may conveniently define a parasite as an organism which obtains its subsistence by appropriating the physiological earnings of another living organism (the "host") to which it has attached itself. It differs essentially from carnivorous or other predatory organisms and from carrion-consuming forms such as the necrophagous beetles, which live by appropriating the reversion of the physiological estate of dead organisms; for the members of both these classes obtain their food by normal activities and elaborate it by their own physiological labour; whereas the parasite obtains its food without exertion and in the form of ready-made nutriment. Epizoa such as the louse, tap the surface on which they live for a nutritive fluid—blood—requiring virtually no physiological treatment, while Entozoa, such as the tape-worm and the fluke, live immersed in a bath of ready-digested food.

The parasites are characterized by three outstanding peculiarities:

(1) Marked degradation of structure; (2) suppression of constructive and correlative functions; and (3) disproportionate complexity of reproductive organs and functions.

As to the first two characteristics, they are obviously related to the mode of life. An organism which obtains its livelihood without effort, clearly does not require the structures or functions which form the means for the output of effort. A louse, which lives in constant contact with its food, has no need of the elaborate locomotive, digestive and perceptive organs with which a normal insect is furnished; and the same is still more true of the intestinal worms and flukes and those parasites like the Trichina and Filaria which live embedded in the tissues or in the blood.

The necessity for the extraordinary development of the reproductive mechanism is only a little less obvious. Both organs and functions are, in magnitude and complexity, utterly disproportionate to the other organs and functions. And not only are the reproductive structures highly organized in parasites which are otherwise almost devoid of organs; the whole of the reproductive phenomena are amazingly elaborate and subtle. By the " Alternation of Generations " the young parasite is, as it were, smuggled in disguise into the body of its host, with the aid of another animal. Thus the Liver Fluke is introduced—disguised as a Cercaria—by the water snail (*Limnæa*) to its host, the sheep; the Tape-worm is introduced, as a Cysticercus, by the pig to the human intestine; the Guinea-worm obtains access to man with the aid of the water-flea (*Cyclops*; and the Plasmodium of Malaria and the Trypanosome of Sleeping Sickness are chaperoned respectively by the mosquito and the glossina. But in addition to the intricacy and subtlety of means is an incredibly colossal output of offspring; which may be appreciated when it is stated that, in the case of a tape-worm (*Tænia solium*) twelve feet in total length, eleven feet, eleven inches and three-quarters consist of reproductive appendages (*proglottides*) and the remaining quarter of an inch of the rest of the animal.

What is the explanation of this gigantic reproductive mechanism? Obviously it is a provision against some specially unfavourable conditions, for no animal puts out unnecessary reproductive effort. A female shark deposits about half a dozen eggs annually, a female cod-fish deposits about two millions. The difference in the number of eggs represents the difference between the risks to

which the young sharks and young cod-fish respectively are exposed.

But what are the specially unfavourable conditions against which these elaborate provisions are made? The answer is that all the initial conditions are unfavourable. The parasite reproduces itself against a steady resistance. The young parasite, to secure a livelihood, must obtain access to the body of another organism without that organism's consent or acquiescence; for no animal willingly accepts a parasite. This necessity involves the subtle, deceptive, indirect methods of approach which we have seen to be characteristic of this class of animal. But even with all this subtlety of method, failure will be far more frequent than success; hence the necessity for the great output of reproductive material. In order that an embryo tapeworm (*Tænia solium*) may finally attain the Elysium of the human intestine, it is necessary that it shall, in the first place, be swallowed by a pig; then it must find its way into one of the pig's voluntary muscles, there to pass a sort of purgatorial resting-stage. Finally, the piece of muscle containing it must be swallowed by a human being; and in the course of these transferences it must escape destruction by mastication or otherwise. If it is not swallowed by a pig, it dies, for it has no power of self-maintenance. Or if the pig's muscle is not swallowed by a human being, again it dies in the Cysticercus state. Evidently the chances in favour of its reaching full development and becoming "settled in life" are much less than those against such success.

Putting the above observations into more general terms, we note that the characters of the parasite present two aspects which are sharply contrasted: one which is concerned with the maintenance of the individual and the other which is concerned with reproduction and the "placing" of the young parasite. The first aspect exhibits extreme degradation and simplification of structure with corresponding suppression and inertness of function; the second a high degree of structural organization with intense functional activity. Or to state the case in still more general terms: The principal characteristic of the parasite is that almost the whole of its activities are concerned in obtaining access to a store of ready-made nourishment created by the physiological energy of another organism. When such access has been obtained, no further activities are required; they are performed by the "host."

The phenomena of parasitism in the lower organisms have very complete analogies in human societies. The social parasite exhibits characteristics closely similar to those of animal parasites; his relation to the body politic is much the same as that of the animal parasite to the individual body, and his activities are completely analogous to those of animal parasites. This becomes very evident if we consider a typical social parasite such as the habitual criminal and compare him with a normal man. We shall see that he differs from the normal man in precisely the same way that an animal parasite differs from a normal animal. If we peep into the burglar's handbag, we find it to contain an elaborate apparatus of jemmies, drills, braces, etc., the sole purpose of which is to obtain access to a store of ready-made wealth created by the activities of another man—the burglar's proposed "host." It has no connection with the creation of wealth. And as with the structural aspect, so it is with the functional; the burglar's skill is exclusively concerned with obtaining access to a store of ready-made wealth. And so with the pickpocket, the "confidence man," the welcher, the forger, the swindler and even the high-class operator with the oxy-acetylene blow-pipe; they create nothing. Their skill, their energy, their cunning are employed exclusively in obtaining access to ready-made wealth created by others.

Contrasting the social parasite with the normal man, we see that the activities of the latter are mainly creative. The craftsman's tool-bag contains apparatus for the conversion of material into commodities—for the creation of wealth. The farmer's apparatus has for its purpose the production of food and other material from the soil—the creation of wealth. And the functions—skill and activity—of both have a similar purpose. So a normal animal such as the cow or the deer is structurally and functionally adjusted to the conversion of the raw material of grass or herbage into animal tissue by the exercise of strenuous physiological labour. And since the young animal is self-maintaining (with the aid of its parents) the reproductive processes are overt, straightforward and moderate as to output.

From the above considerations it appears that a social parasite is an individual who, in place of creating wealth for his own maintenance, subsists on wealth created by another individual or body of individuals; that in a creative

or constructive sense he is quite inert and that his activities are principally concerned with obtaining access to such ready-made wealth. And further that the extent to which his access-obtaining activities predominate over his creative activities is the measure of his parasitism. This latter proposition is of such importance, since it furnishes a test by which the quality of various kinds of activity can be estimated, that it is worth a somewhat more detailed consideration.

Social parasites fall into two groups. There are the simple and typical forms such as the criminal, the vagrant and the mendicant, whose access-obtaining activities are quite undisguised, and there are the more subtle forms whose approaches are made under some kind of deceptive cover. As the young tapeworm obtains access to the human intestine disguised as a portion of a piece of pork, and the young fluke obtains access to the sheep, disguised as part of a blade of grass, so these more subtle types of social parasite obtain access to ready-made wealth by simulating certain normal characters. Now, the activities of normal citizens are of two kinds. They consist either in the direct creation of wealth by the production of material or its conversion into manufactured goods, as in the case of agriculturists, miners or craftsmen; or in the rendering of valuable services which are accepted as the equivalent of wealth and are willingly paid for by the community or by individuals, as in the case of judges, shipmasters, teachers, doctors, etc. Accordingly the more subtle form of social parasite makes his approach to his " host " disguised either as a producer of commodities or as one who is in a position to offer valuable services. Let us consider one or two instances of each type, beginning with the parasite who approaches his " host " under cover of a dummy commodity.

We will take the case of a patent medicine vendor who advertises an elixir compounded of a certain herb discovered a century or two ago by an aged woman, which is guaranteed to cure all diseases from cancer to consumption, from mumps to malaria.* In the present state of the law, such a person is not a criminal, but he is a typical social parasite. It may be objected that he does not fulfil the conditions of parasitism inasmuch as he creates a commodity and

* In a quack advertisement which I once saw, the diseases cured included cataract and fistula—verily the Alpha and the Omega of therapeutics.

obtains voluntary payment. But on examination both of these propositions are found to be untrue. The thing which he has created is not a commodity at all. It is an appliance for obtaining access to ready-made wealth, like the snide-man's pewter half-crown or the note on the Bank of Engraving. And the payment is not really voluntary. For the money is paid by the purchaser for the thing which was advertised. But the thing which is supplied is not the thing which was advertised. There was no old woman and there is no herb. The elixir is simply a coloured and flavoured drink, and it does not cure the diseases mentioned, or any other—except financial plethora. The nostrum vendor's real activity is the issue of advertisements. On his skill and energy in that purely access-obtaining activity his success depends entirely. The bottle of elixir is a mere accessory incident.

From a case like this in which the commodity is an actual dummy and the vendor a parasite pure and simple, we may pass by a graduated series of decreasingly parasitical forms until we reach the normal producer who creates a genuine commodity. To assess the amount of the parasitical element in any given case of an intermediate type, the qualities of the commodity must be considered in conjunction with the means taken to dispose of it. To constitute a real commodity a thing offered for sale must be, at least, approximately, what it purports to be; and there must be a reasonable relation between the selling price and the cost of production. If it conforms to these conditions, its exchange for a money equivalent is a normal transaction in which there is no parasitical element. In so far as it fails to conform to them, it is not a real commodity but merely a means of obtaining access. For instance, a packet of powdered chalk or plaster of Paris sold at a shilling a pound under a trade name as a fuel economizer for the purpose of sprinkling on coal to decrease consumption and increase the production of heat, is not a real commodity. It fulfils neither condition. It is not what it purports to be—a fuel economizer; its actual nature is not disclosed, and there is no economic relation between its value and its selling price. Its sale is a fraud on the buyer, *i.e.* a parasitical activity. In a like manner the sale at two shillings of an article which cost two pence to produce is not a normal transaction. There is a maximum remuneration to which the producer and distributor are entitled;

the excess over such economic profit measures the extent to which the vendor is parasitic on the community.

In addition to the qualities of the alleged commodity itself, the means employed to dispose of it frequently indicate the character of the vendor. A real commodity which supplies a need and is what it is represented to be can usually be sold by normal and straightforward methods. A dummy commodity, on the other hand, usually requires to be forced on the market principally by means of the familiar " suggestion " advertisement.

Advertising is, of course, a perfectly legitimate activity so long as it consists of straightforward announcements and descriptions which correctly state the character and uses of the article or service offered. But this kind of advertisement is of no use to the commercial parasite. Nobody would buy his product on its merits, for it has none; and a correct description of it would effectually seal those pockets to which he is seeking access. He therefore proceeds somewhat thus: First he gives his product some meaningless name—" Walker," for instance. Then he covers the hoardings and newspaper pages with the word " Walker " in large type, endlessly repeated. When this has had time to " soak in " he invents a catch phrase and in like manner covers the hoardings and newspapers with interminable repetitions of it, thus:

" Have you a leaky roof? *Walkerize it.* Does your chimney smoke? *Walkerize it.* Is your breakfast egg musty? *Walkerize it.* Does your back ache after stooping? *Walkerize it.*" And so on *ad nauseam.*

To an ordinary, reasonable man the proceeding appears merely puerile and silly. But it is not. Experimental psychology has shown that in the case of feeble and highly suggestible minds, the frequent repetition of a statement or order results in its acceptance or compliance. These advertisements act by simple, non-hypnotic suggestion. When the suggestible individual has read the advertisement a certain number of times, he is impelled to go to the shop and buy a pot of Walker and follow the directions for use. Advertisements of this kind, then, have no economic function; they are typical access-obtaining appliances. Usually the commodities that they herald are mere dummies under cover of which the parasite approaches the pocket of his " host."

Perhaps more common than the pseudo-commercial

parasite is the parasite who proffers services. And in his case the same phenomena are to be observed. He is distinguished from the normal man by his energetic access-obtaining activities. The doctor and the qualified dentist, who render real services, await the summons of the patient; whereas the herbalist, the " curative electrician " and the whole genus of quacks fill the hoardings and advertisement columns with promises and offers, while the unqualified dentist's premises are gay with lurid sign-boards, coloured lamps and glass cases of unattached grins. So, too, in financial circles; the legitimate stock-broker waits for clients to seek him; whereas the bucket-shop keeper, the money-lender and the shady company-promoter pour forth an unending stream of " suggestion " circulars.

But the whole of the financier class is essentially parasitic. Its activities are not concerned with the creation of wealth but in obtaining possession of wealth already existing. And it is to be noted that a large proportion of the so-called commercial magnates belong to this class. The " Captains of Industry," the " Railroad Kings," the members of trusts, combines, rings and colossal industrial concerns generally, are in reality financiers. Their products are merely the pieces with which a financial operation is conducted, the appliances with which access is obtained to wealth. The millionaire acquires his enormous riches, not by simple and straightforward production, but by " deals " and manipulations of markets, operations which are financial rather than truly industrial; which consist less in creating wealth than in getting possession of it.

Moreover, there is a distinct tendency for the whole class of manufacturers—with the exception of ship-builders, engineers and members of other legitimate machine industries—to become parasitic on the community. The inversion of the relations of the producer and the consumer, to which attention has already been drawn (p. 129) marks the change. The hand worker laboured to supply a demand. His function was to supply the necessities of the consumer. The modern manufacturer " creates a demand," as he expresses it; that is to say, he forces a consumption of the things that the conditions of mechanism compel him to produce. He does not conceive himself as existing to supply the necessities of the consumer; but he conceives the consumer as existing to supply his—the manufacturer's —necessities. This is very clearly shown by the attitude

of many of the manufacturers of this country, who demand —apparently unconscious of the monstrous nature of the claim—that the population shall be deprived, by means of import restrictions, of the commodities which it needs in order to enable the manufacturers to carry on their activities in the manner most profitable and convenient to themselves. In other words they demand exclusive possession of the consumer to use for their own purposes.

The phenomena of social parasitism tend to be exhibited in a fairly typical form by employees of the State. A permanent official has a vested interest in his post and an inalienable right to his salary. It has been authoritatively stated that a civil servant cannot be dismissed for mere incompetence or for any reason other than active misconduct; and the same appears to be true of all other permanent officials. The assumption is that his fitness for the post has been determined once for all before his appointment and cannot thereafter be questioned. His appointment, therefore, amounts to the acquirement of a permanent income, subject to periodic increase, and not dependent on his capacities or exertions. That income represents a consideration for services rendered, but inadequacy of the services does not involve its suspension. Here then we have one set of characters which appertain to parasitism; and there are others equally distinctive. Thus, the candidate for a State appointment commonly enters for a competitive examination, and if he is successful he obtains access to a permanent income. The examination and the strenuous preparation for it therefore represent purely access-obtaining activities; and if we compare the output of energy required to pass such an examination with that required to carry out the duties of an official, we shall observe a marked contrast. The higher competitive examinations are of considerable difficulty, and success in them implies great energy and no small ability of a special kind; whereas in respect of both energy and ability, official activities compare very unfavourably with analogous activities performed by ordinary business men. Thus, in the case of state officials, there is a marked preponderance of access-obtaining activities over the productive activities.

And that which is true of the Government servant is still more strikingly true of the Government itself, *i.e.* of the professional politician. His activities are almost exclusively

of the access-obtaining kind. We have already noted (p. 20) that the politician is an entirely unqualified practitioner. Professionally, he is analogous, not to the barrister, the solicitor, the surgeon, the civil engineer, professional men whose efficiency is guaranteed by tests of knowledge and evidence of special training; but to the herbalist, the bone-setter and the unqualified dentist, men who offer no guarantees, who are self-appointed to their professions and whose skill is mainly concerned with obtaining clients. The qualifications of a skilful politician are those of a fluent and persuasive speaker, a ready debater and an adept in political strategy and tactics. And what are the activities that demand skill of this kind ? They are, first, the activities of the election, by which the candidate seeks to obtain access to the House and the members' salary, and then those by which he seeks to get into office and obtain access to its privileges and emoluments. In carrying out these activities he often displays surprising skill and energy; but when their purpose has been achieved, when success at the poll has transformed him from a candidate to a legislator, it becomes evident that the new kind of ability that is now required does not exist. On reading the speeches of politicians in office, that which principally impresses the thoughtful observer is the rudimentary character of the conceptions of social causation which they display. And when these conceptions generate action and policy adjusted mainly to immediate political exigencies and regardless of remote consequences, the impression is confirmed that the politician is unequal to the intricate and difficult task of managing the affairs of a community, which is his ostensible function; that, in his case, the access-obtaining activities preponderate enormously, in respect of efficiency, over the productive activities.

It would be interesting, if space permitted, to trace other of the analogies between the animal parasite and those forms which prey upon society. But these must be passed over with one exception, the importance of which justifies a brief consideration. This is the destructiveness, the costliness of maintenance in the case of parasites as compared with normal forms. The normal animal, as a rule, consumes little more than is necessary for its maintenance. An ox, a sheep or other ruminant, crops enough herbage to support itself; and that, with a trifling amount of waste, represents its consumption. Even carnivorous animals

usually—though there are exceptions to this—destroy little more than they actually consume. But in the case of parasites the destruction is often out of all proportion to the actual consumption. Thus the insignificant Ankylostoma which haunts the intestine of man, and the Bilharzia (*Distomum hæmatobium*) which lurks in the vessels of his bladder, produce profound disturbance of health and even death; the Guinea Worm and the *Filaria sanguinis hominis* set up by their presence, the one prolonged invalidism with possible permanent loss of function of a limb, the other the horrible deformity known as Elephantiasis. So, too, the rat—a normal animal which has adopted parasitic habits—will destroy the greater part of a sack of flour in obtaining a single meal.

This destructive tendency is equally evident in the case of the Social Parasite. A burglar commonly destroys far more than he consumes. Apart from injury to furniture and buildings, his activities involve disproportionate destruction. Finely wrought plate, jewellery and even watches must be broken up and flung into the melting-pot in order that the rude ingots of "hard stuff" may be safely offered to the "fence" at the paltry price of stolen metal. In like manner the political parasite for whom a "job" is created —such, for instance as a Controllership of some industry or commodity—produces a destruction of wealth out of all proportion to his actual consumption. His salary may be no more than one or two thousand a year; and this modest sum represents his actual consumption. But to enable him to acquire this income a huge and costly machinery must be brought into existence; expensive premises must be provided, well sprinkled with telephones and furnished with costly fittings; deputies, assistants and a great staff of clerks must be appointed and various other expenses incurred. And then beyond all this destruction of wealth is the further destruction which results from his activities; the interference with the normal activities of individuals throughout the country, the disturbance of normal social adjustments and the enormous waste of time.

But perhaps the most striking instance of the destruction of wealth which accompanies the activities of the Social parasite is that furnished by the professional mischief-maker—the revolutionary labour agitator, the organizer of political strikes, the man who lives by stirring up trouble among the manual workers. Probably his personal con-

sumption of wealth is quite modest; but the destruction of the wealth of the community which results from his activities is colossal.

One of the most disturbing of contemporary social phenomena is the rapid extension of parasitism on the community. Formerly social parasites appeared as individuals or members of small groups. Now they are appearing in battalions, in armies. Whole classes are becoming parasitic on Society.

The explanation of the phenomenon is fairly obvious. The great increase of the population has produced a huge, unwieldy, overgrown society which is helpless by reason of its very size. In manageable aggregates of men—as, for instance, in an army—this unwieldiness is obviated by strict subdivision. Not more than 250 men are included in a company. A further draft goes to the making of a second company; and when four companies have been built up, the battalion is complete. And so from battalions to brigades, divisions, corps and armies; however large the total aggregate, the component units are never allowed to increase beyond manageable proportions, and each unit, down to the platoon, is largely self-contained and self-directing. In a society, on the other hand, the population tends to form a single, incoherent mass, which, as it increases in size, becomes more and more incapable of co-ordinated action and more and more helpless against the attacks of predatory individuals or mobile bodies. The larger the body, the better nidus does it afford to parasites. The long-haired Mammoth and the woolly Rhinoceros must have furnished magnificent feeding-grounds for dermal parasites—which may perhaps account for their disappearance from the earth; at any rate it seems not without significance that these hairy giants are extinct and that their surviving relatives are without exception bald and armour-plated.

The rapid increase of the population, then, has been accompanied by a still more rapid increase of social parasites. And recently, as a contributory cause, has been added the war. And just as a sickly animal or child tends to become verminous, and an enfeebled person tends to become invaded by pathogenic microbes, so, during the social indisposition of the war, a gigantic swarm of parasites settled down on the body politic. In civil life the ubiquitous

profiteer fixed his hooks in the hide of the community, stuck in his proboscis and sucked joyfully; while in official life, every weak spot on the social epidermis became an avenue of invasion. And even as they found in the national malady of war the opportunity of access, so did they, clinging on desperately after the crisis, delay the nation's convalescence. The profiteer struggled to prolong the golden years of the nation's adversity, while, as to the officials, not only did they strenuously resist dislodgment, but they appeared to be throwing off proglottides and hatching out fresh swarms.

But enormous as was, and still is, the official infestation of the body politic, a yet greater one threatens and is indeed in active progress. For the class known collectively as "Labour"—the associated manual workers of the country—is obviously proposing to become parasitic on the community; and that evident intention is beginning to take effect on an ominous scale. It is by no means a new phenomenon. The manual labourer has long since ceased to support himself completely. For many years past he has been accustomed to have his earnings supplemented by subscriptions levied on the earnings of his more capable fellow citizens. At the cost of the latter his children have been educated and in some cases partially fed and clothed, and he has been in the receipt of various other "free" benefits—that is to say, benefits paid for by the subscriptions of his fellow citizens. And as these "free" benefits have increased in number and magnitude, he has accepted them as a right and has now obviously arrived at the belief that he has a definite lien on the property of his fellows.

This claim of "Labour" to establish itself as a parasite on the community appears to be fully accepted by the politicians. The principle of the "living wage" conceded by them is one of the evidences of that acceptance. For the living wage is computed, not on the consideration offered, not on the value of the services rendered, but on the requirements of the wage-receiver. Its acceptance amounts to agreement to the principle that an individual has a right to be maintained by his fellows if he is unable to, or in fact does not, maintain himself. And this appears to be the actual claim of Labour.

The principle is radically unsound, and I am unaware of any evidence that has ever been offered in its support. The necessity of maintaining the destitute may be admitted;

but such maintenance is not a wage; it is a charitable donation. A wage is remuneration for services rendered and its normal maximum limit is the value of such services. Any excess above this is not a wage at all; it is a gift; it is unearned income. But any necessary relation between the value of work done and the payment received appears to be repudiated alike by " Labour " and by the politicians. By the one " demands " are being made on behalf of almost totally unskilled labourers for untaxed incomes equal to those of many self-supporting and tax-paying professional men; by the other is offered the amazing spectacle of ministers promising a considerable section of the population of the country permanent incomes adjusted to their comfortable maintenance without regard to the quality of their services to the community.

The present attitude of " Labour " is thus similar to that of a large class of manufacturers. Both appear to regard the community as a sort of feeding-ground which exists only for their use and benefit. Both want the nation to be turned into a preserve to supply their particular requirements; and both appear to be so blinded by egotism as to be quite unconscious of the fact that they form but a part —and by no means the most indispensable part—of a great community.

The immense increase of social parasitism and the adoption of parasitic activities by entire classes, present a condition which threatens the very existence of the community. For the latter is dependent exclusively upon the capable citizen who not only maintains himself completely but produces a surplus which he contributes for the upkeep of the State and for the support of the less capable. Without a sufficient body of such capable, thrifty, self-supporting citizens, the community would obviously collapse. And it is on this body that this swarm of parasites is settling. The huge sums of money that the Minister of Labour, during the year after the war, shovelled out broadcast to the workless, the idle, the thriftless—even to the habitual criminal, as the magistrates can testify—were the earnings of the industrious, self-supporting, provident citizen. The huge sums that are to be shovelled into the Ministry of Education for the purpose of forcibly injecting knowledge into the children of the proletariat, are the earnings of capable men who educate their own children by their own unaided efforts. The millions that are to be spent on

providing comfortable and convenient houses for the manual worker, will be mainly the earnings of industrious, self-supporting men, many of whom are making shift with inferior dwellings. The enormous sums of money that the colossal bureaucracy which has grown up since the war, consumes, and the still more enormous sums that it squanders in the course of its activity; all are furnished by the compulsory subscriptions of the capable citizens who work and save, who maintain themselves and pay taxes.

Politically, of course, this type of man is negligible. He does not agitate, he does not form processions, he does not go on strike or organize revolutionary disturbances. To the politician he is quite uninteresting—excepting when money is to be raised. Nevertheless he is the one man who matters. He is the only man who is of any value to the community. If all the others were to disappear to-morrow, the nation would be the richer by their disappearance. But the capable citizen who creates his own means of subsistence and makes up the deficiencies of the incapable and the worthless; he is the indispensable part of the population, without whom the existence of the community would be impossible.

Yet this type of man is a member of a dwindling body. Statistics show that the professional class has the lowest birth-rate of the whole population, while the allied industrious classes—small tradesmen and superior artisans—marry late and have relatively small families. On the other hand, the manual labourer has the highest birth-rate and usually marries early. The manual labourers, therefore, are much more prolific—are increasing much more rapidly—than the self-supporting class on which they are becoming parasitic. Add to this the fact that officials tend to multiply as the functions of the State expand and it becomes obvious that there is arising a state of affairs which cannot possibly last. By the mere relative ratios of increase, the parasitical classes will soon overwhelm the supporting class. The majority will be parasitical upon the minority, and the latter must sink under the sheer weight of numbers. Moreover, the capable and industrious man will tend towards virtual extinction from another cause. The motive of industry is the achievement of certain results. An industrious and intelligent man labours in order that he may attain comfort and security for himself and make suitable provision for his children. But if these results are not

achieved—if his earnings are taken from him as fast as he produces them—why should he labour? It cannot be imagined that any intelligent man would continue to put out industrious effort in order that politicians, officials and manual labourers should subsist in comfort on his earnings, while he, himself, struggled on in relative poverty. That fabulous community whose members lived by taking in one another's washing was an economically sound concern compared with one in which a vast majority should subsist parasitically on the earnings of a dwindling minority. Yet this latter is the social state towards which our own society is advancing; and it remains to be seen how near we are to the inevitable catastrophe.

CHAPTER X

COLLECTIVISM*

SOME apology seems to be due to the thoughtful reader for the inclusion of Collectivism among the matters for discussion in the present argument. It has been said that a man who is not a socialist at twenty has no heart; that one who is a socialist after twenty has no head; and it is a fact that, as Mr. Benjamin Kidd has implied,† the socialist or collectivist doctrine has never been accepted by men of science or other serious thinkers. The discussion of the subject, therefore, might appear to be the mere flogging of a dead horse but for one very important circumstance; which is that, in spite of the rejection of the doctrine by all competent thinkers, we are actually living under a *régime* of collectivism. The socialistic tendencies which have been slowly growing for years have suddenly become realized during the war into actual, though, imperfectly developed State Socialism. And the change in the con-

* In this book I have used the word "Collectivism" in preference to the more usually employed name "Socialism" for a definite reason. Collectivism is a strictly connotative name and is the natural antithesis to "Individualism." "Socialism" is not a really connotative term, and such appearances of connotation as it has are misleading. I find, in conversation, a prevailing impression that Socialism is a system which aims at social welfare and that Individualism is a system which considers only the welfare of the individual and disregards that of the community.

† "Social Evolution."

stitution of the State has been generally accepted, not only by the political body known as " Labour "—which accepts and maintains the doctrine of Socialism—but by the population at large. Whence it follows that Collectivism, as an actually existing condition, has to be considered among the factors of Progress or Decay.

Every permanent aggregate of men must be governed by some scheme for co-ordinating the activities of individuals. For though the aggregate is but a multiple of individuals, its activities are something more than a multiple of the activities of individuals. The conditions of an aggregate involve, necessarily, the co-operation of the units for their mutual and common welfare; and the scheme of co-ordination on which the constitution of any given aggregate is based will define the nature of the co-operation.

Such a scheme of co-ordination must be based on one or other of two principles, the Individualist or the Collectivist. The actual state may be intermediate; but there is no intermediate principle, for each is the antithesis of the other. Whence it follows that any aggregate which presents intermediate or mixed conditions is really in a transitional state and is moving towards the establishment of a scheme in complete logical agreement with the one or other of the two principles. Any ideas of compromise are illusory. The two principles are mutually exclusive; and the adoption of any measure of co-operation based on one or other of them, amounts to an acceptance of that principle and the creation of a precedent.

Thus, every society, whatever may be its political form of government—monarchy, oligarchy or democracy—must ultimately conform to one of two types: that whose scheme of co-ordination is based on the Individualist principle, or that whose scheme is based on the Collectivist principle. The ultimate purpose of both schemes is the same—the promotion of human welfare; the difference between them being due to the different terms in which welfare is conceived, and the difference in the implied conception of the relation of the individual to the community.

Under the Individualist scheme the individual is conceived as the social unit and the State as an aggregate or multiple of individuals. The purpose of social co-ordination is conceived to be the welfare of the individual; and it is assumed that when this has been secured, the welfare

of the State has been secured; that the welfare of all the units is the same thing as the welfare of the aggregate. Such welfare necessarily implies the existence of such external relations of the community as will ensure the stability of the internal conditions.

Under the Collectivist scheme the State is conceived as the social unit and the individual as a fraction of the State. The result aimed at is the welfare of the State; the assumption being that the welfare of the whole includes the welfare of the parts; that the fractions of a prosperous State are, *ipso facto,* prosperous individuals.

Thus stated, the two schemes with their underlying principles, appear to present but a verbal difference—the difference between a social Tweedledum and Tweedledee. But the appearance is deceptive. In practice, the converse social conceptions generate totally opposed forms of social activity and development and result in the establishment of completely opposite types of societies. Let us consider the two schemes in somewhat more detail. And first we will take Individualism; not the caricature of Individualism which has been set up by certain Collectivist propagandists as a man of straw to be conveniently knocked down, but the Individualism of serious thinkers.

The Individualist State.

Individualism, as we have seen, conceives the individual as the unit of the community, and the achievement of his welfare as the purpose of all social activities. The welfare of the State is conceived in terms of, and is to be achieved through, that of the individual. But "welfare," broadly considered, is a condition in which pleasurable states of consciousness tend to predominate over unpleasurable states; and the conditions productive of welfare are consequently those which tend to produce an excess of the pleasurable over the unpleasurable states. But the conditions productive of pleasure are not the same for all individuals. On the contrary, the satisfactions sought by different individuals are as widely different as are the personalities, temperaments and circumstances of the individuals themselves; and the higher the type of individual, the more definite and pronounced is his personality and the greater the difference between it and the personality of other high type individuals, with corresponding differences

in the nature of the satisfactions sought and the conceptions of personal welfare. And since personal welfare has thus to be conceived in terms of the tastes, temperament, personality and intimate circumstances of each separate individual; it appears to follow that of the conditions the establishment of which constitute the welfare of any given individual, that individual is the only competent judge. But if each member of the community is the sole competent judge of the conditions of his own personal welfare, it would also appear that he is the most competent agent to effect the establishment of those conditions. And if this also be admitted, it follows that the individual requires no more from the community than the liberty to pursue without hindrance those satisfactions which yield him the maximum of pleasurable states of consciousness and thus constitute his personal welfare.

Thus the foundation of the Individualist scheme of social polity and the essence of the Individualist principle is personal liberty; and its enjoyment in the most complete form possible is the principal and practically the only benefit the individual asks from the State. But, in a community, it is obvious that complete personal liberty is impossible. For the conditions applicable to one member are equally applicable to all the others. The maximum degree of liberty which can be enjoyed by one is that which can be enjoyed by all; that is to say that any given individual can enjoy and exercise personal liberty only in so far as its exercise does not offer any hindrance to the enjoyment of a like degree of liberty by every other member of the community.

The personal liberty of the individual—limited only by the like liberty of the other members of the community—being the fundamental condition of Individualism, the other elements of the scheme are deducible from it. Thus the individual being the sole judge of his own welfare, and enjoying the necessary liberty to take the appropriate measures to secure it, is fully responsible for its achievement, including, of course, his own maintenance. He has a right to live—by his own efforts; and freedom to make what efforts he thinks necessary, within the inevitable limits. But he has no right to demand efforts on the part of his fellows for securing his maintenance or welfare; for such a demand would constitute an infringement of their liberty and a hindrance to the pursuit by them of their own

welfare. In the Individualist state, therefore, every individual is conceived as completely self-supporting and as subject to no obligation to support any other individual (the individual, of course, includes his family). Similarly he is conceived as having an inalienable right to the possession of the products of his own activities; and as having no kind of right to, or lien upon, the products of the activities of his fellows. He may, if he pleases, co-operate with other members of the community for the achievement of the mutual or common benefit of the co-operators; but he cannot be compelled to undertake joint activities either for his own or for the common benefit.*

The functions of the State under Individualism, are practically limited to the maintenance of the liberty of the individual. By the institutions connected with the administration of justice the individual is secured from aggressions upon his liberty from within the community; by the institutions of defence his liberty is secured from aggressions from without. These protective institutions are the only ones that normally and necessarily exist under Individualism. Other co-operations of the whole community may occur for the execution of works necessary for the whole community, as, for instance, the construction of main roads, the buoying and lighting of main navigation channels, etc. But even these works need not necessarily be carried out by the State. In practice, the actual executants may be co-operative bodies of individuals conducting these activities on behalf of and at the charge of the whole community. And in all cases, the principle which underlies co-ordinations of the Individualist State is that whatever it is possible for the individual to do for himself he shall do, either alone or in voluntary co-operation with other interested persons. The ideal of Individualism is the reduction of the activities of the State to an irreducible minimum with the correlative increase of the liberty of the individual to an unaugmentable maximum.

It may possibly be objected that the existence of any State institutions whatever involves an infraction of the Individualist principle; that such institutions as Courts of Justice, police and the army and navy are essentially

* Military service in a national emergency would become a compulsory co-operation if voluntary co-operation failed to provide a sufficient army, which, however, would be unlikely to be the case. For under individualism, voluntary co-operation would be highly developed and public opinion a powerful motive force.

collectivist in nature. This, however, is not the case. The objection is based upon the misconception of Individualism to which I have already drawn attention; which conceives the Individualist State as a mere discrete aggregate of unrelated individuals, each concerned exclusively with his own egoistic projects and totally unmindful of the well-being of his fellow citizens. But this is mere parody. Individualism is a system of social polity. It conceives a human Society as an aggregation of men, not merely inhabiting jointly a given area, but living in a state of friendly and mutually helpful association for the common benefit. But it conceives that common benefit to be best secured by the maintenance of the most complete liberty and independence of the individual that is possible under the conditions of social aggregation.

With this conception of individual and social welfare the establishment of the above institutions is in complete accord. The one condition that is indispensable to each and every member of the community is the preservation of his personal liberty. But the preservation of the liberty of each and all is the purpose of these institutions; and it is a condition that could not be secured without such institutions. These, therefore, represent the irreducible minimum of State activity. And since every member of the community receives the full benefit of that activity; since the conditions of life secured by that activity are indispensable to every member of the community; and since those conditions could not be secured by any other means: it follows that such State activity must be regarded as the voluntary co-operation of the whole aggregate of individuals for the benefit of all collectively and of each severally.

It will be noted that the Individualist scheme includes no formal arrangements for the relief of the poor or the unfortunate. Not that it is assumed that such relief should not be given, but that it will be administered by the voluntary actions of benevolent individuals. At the first glance this appears to be a method which offers insufficient security that effective relief will be given. To such an objection the Individualist has two rejoinders. First that, inasmuch as the Individualist State has no institutions which can be exploited by the merely idle, no professional poor class will exist, and the number of the actual poor and unfortunate will tend to be moderate; and secondly, that under the

Individualist conditions of the past, the poor and the indigent sick were amply provided for. He will point to the innumerable alms-houses, colleges, free-schools and similar charitable institutions with which Individualism covered the country; he will draw attention to their reasonable objects and excellent administration; and will remind the objector that our great hospitals were brought into existence by the individual efforts of private persons and are even to this day maintained by voluntary gifts and the voluntary, unpaid services of the élite of the medical profession.

The Collectivist State.

From the above outline sketch of Individualism, we may now proceed to a similar sketch of the alternative social scheme, Collectivism. And here, at once, we perceive that the application of the ultimate principle results in the evolution of a totally different type of social structure, a totally different set of State institutions and totally different relations of individuals. Collectivism conceives the State as the unit and the individual as a fraction of that unit. The State is the whole, the individuals are the parts. But this conception of the individuals as the parts of the State involves the further conception of them as equal parts. It cannot be otherwise. For in a State made up of millions of individuals it would be impossible to take account severally of the personal peculiarities of each individual. Nor would such separate consideration of individuals be in accordance with the principles of Collectivism.

We therefore see that, whereas the fundamental condition of Individualism is liberty, the fundamental condition of Collectivism is equality.

From this conception of the State as a concrete whole composed of a vast number of equal parts, the social policy and institutions of Collectivism issue logically. Since the welfare of the whole includes the welfare of the parts, the achievement of the welfare of the State is the primary social need and must be the principal aim of all individual activities. And since the function of the State is to secure the welfare of all its parts, it must be provided with the means of carrying out this function. But these means are created by the productive activities of individuals, acting singly or collectively. Whence it follows that the products of individual or collective activity must be made

over to the State, to be distributed or otherwise employed in accordance with its functions; or, what is a simpler and more logical arrangement, the means of production must be owned by the State and the wealth created thereby the property of the State.

Under Collectivism the relative conditions of the individual and the State are exactly the reverse of those which obtain under Individualism. The functions of the individual are reduced to the utmost simplicity, those of the State are developed to the utmost complexity. The individual is concerned only with the performance, under the direction of the State, of certain productive activities. He has no responsibilities. His maintenance and his personal welfare are no concern of his; they are the concern of the State. From the State he receives his food, his clothing, his house, his amusements; by the State his health is cared for, his children educated, fed and clothed; and when he travels—by permission of the State—the means of transport are free. And these benefits are not contingent. He is fed, clothed and housed not because he is industrious or thrifty or capable, but because he is a fraction of the State. There is no connection between the amount or quality of the effort that he makes and the benefit that he receives. That benefit is adjusted to his needs. All property is vested in the State, and it is the business of the State to distribute that property without discrimination, supplying equally the needs of all. For, since all are equally the fractions of the State, it is obvious that all, as fractions, have equal rights.

But further, since the State owns all property, including the means of production, it follows that all activities—excepting the purely personal and domestic—must be carried out by the State. For the " means of production " includes the entire machinery of industry in the widest sense, the means of carrying out practically every kind of activity. Hence all transport, both land and sea, will be owned by the State and manned by State officials; and the same will be true of all banks, markets, exchanges, educational establishments and places of worship; and the medical and other professions will be composed of State officials and will be under the direction of the State. In short, the principle will be adopted that nothing which can be done by the State will be done by individual activity or initiative. All individual actions will be initiated, guided, directed and controlled by the State; and from this will necessarily

follow complete subordination of the individual to the State. For the community will be in its structure one vast public service, with all the necessary controlling and directing agencies and pervaded by the inevitable discipline of a public service.

Furthermore, since all property is vested in the State, none can be vested in the individual. Hence the individual has no rights in respect of the wealth created by his labour. His rights are limited to the supplying of his needs by the State. The products of his activities are the property of the State; that is to say, they are common property, on which every other member of the State has a lien equal to his own and subject to their allocation or distribution by the State.

Individualism and Collectivism compared.

Having sketched the two alternative systems in bare outline, we may now proceed to compare them. And our comparison may deal with them in three aspects: (1) Their respective economic efficiencies; (2) their appropriate forms of government; and (3) their respective effects on the individual.

1. *Comparative Economic Efficiencies of the Two Systems.*

The comparison of the two systems in terms of their respective economic efficiencies is eminently unfavourable to Collectivism. Under Individualism all economic activities are carried out by individuals who are directly affected by their results. If those activities are successful, the actors benefit; if they are unsuccessful, the actors suffer. The merchant who miscalculates future prices loses on his investment. The shopkeeper who lays in a large stock of commodities which no one wants locks up his capital. The carpenter who cuts up his wood wastefully has to spend more on material. And, conversely, the far-seeing investor who " smells a rise " in the markets and buys when others are selling, gains a profit. And so in all cases. The consequences of actions take effect on the actors and thus furnish a spur to endeavour and an incentive to industry, thrift and forethought.

Under Collectivism economic activities are carried out by individuals who are not directly interested in their

success or failure. In the case of a State factory or workshop, the State absorbs the profits or bears the loss. The officials who conduct the factory are not affected by the one or the other. Naturally activities so conducted lack efficiency; and the inefficiency of State activities—especially those of an economic character—has been a commonplace for centuries. So long ago as 1662, Pepys—himself an official—notes:* "I see it is impossible for the King to have things done as cheap as other men." And what was true in Pepys' day is equally true in our own. The inefficiency of the official is due to causes that are not removable. It is a condition for which there is no remedy. The peculiarity of the official is that the consequences of his actions operate on someone other than himself. If he lacks knowledge, judgment or industry, these qualities entail loss to the community, but he, himself, remains unaffected. The blunders of a controller who, by jerking up and down the prices of commodities confuses the merchants and paralyzes trade, inflicts immense loss on the community; but the official himself continues to draw an undiminished salary.

This characteristic of the official—immunity from the consequences of failure with the resulting indifference to success—is fatal to his efficiency. It damns him utterly as the agent of any necessary activity. But the whole economic system of Collectivism is based on officialdom. Indeed, under Collectivism the entire community consists of officials; for every individual is a servant of the State and is in receipt of unconditional maintenance from it.

Another unfavourable feature of State activity is its tendency to surround itself with a gigantic clerical apparatus; to set up huge establishments of non-productive officials. As soon as any man is appointed to do an actual piece of work there springs into existence a body of clerks whose function is to bombard him with instructions, questions and demands for statistical returns and reports of what he has done. The real worker is continually hindered by the clerical departments, which have to justify their existence by a show of activity and whose activities are usually useless and even mischievous. The head—and probably only—master of a provincial Art School has little time for teaching, his working day being largely taken up by the compilation of elaborate and intricate tabulated

* Diary, July 21, 1662.

statements of the attendance and work done by each student. An army of clerks at headquarters is engaged in setting him statistical problems and asking statistical conundrums; and the time which he should be devoting to his pupils is devoted to the clerks. A State department seems to be unable to draw a breath without immediately rendering a return showing the volume of air inspired. A passion for tabulated statements is the pervading disease of officialism and the consumption of stationery the only activity for which it shows any aptitude.

It thus appears that under Collectivism, each producing institution would be accompanied by a clerical department whose function would be to issue instructions to and to demand returns and reports of work, expenditure of material, etc., from, and generally to hinder and waste the time of the producing officials. And in addition to these local and special clerical departments there would be the great central bureaucracy of the administering and governing departments. The total magnitude of this bureaucracy may be judged by a consideration of the bureaucracy that has grown up in this country during the last few years under a Collectivism that is as yet only tentative. The activities of the present State machine are almost entirely confined to paper activities. Its economic functions have hitherto hardly developed beyond the occasional dropping of a cuckoo's egg into an already-existing industry. Yet the upkeep of that bureaucracy already consumes about half the revenue of the country, and the number of persons employed by it approaches half a million. What its size and cost would be if, instead of tinkering with industries which are still conducted by efficient private individuals, it were committed to the actual production of all the commodities consumed by the population and to the complete maintenance of that population, we can only vaguely imagine. But we may fairly surmise that it would absorb a sensible proportion of the population, and that its upkeep would put a very severe strain on the remainder who would be engaged in productive activities.

Thus it appears that under Collectivism the economic activities of the community would be conducted in the least efficient and the most costly manner. Its producing agents would all be officials and its producing institutions would all be appendages of a vast bureaucracy. Whether Collectivism would be practicable at all, it is not our present

business to enquire. We are concerned only with its effects as issuing from its principles.

But before leaving this part of our subject we may note that the conclusions reached on theoretical grounds are completely verified by our experience of Collectivism. We may exclude the period of the war as an abnormal period during which abnormal conditions necessarily prevailed. But the war is a thing of the past. Since its conclusion we have been living under a rule of Collectivism; and this Collectivist period is probably the most unprosperous period in the whole of our national history. Our revenue is utterly insufficient to meet current expenditure; and that revenue cannot be materially increased for fear of a general financial collapse. Our nation is poverty-stricken, is heavily in debt, is subsisting on borrowed money, is daily borrowing more and is nevertheless launching out into costly State schemes which will involve the borrowing of yet more money. The interest on all this borrowed money represents a whole necklace of mill-stones around the neck of the community. And meanwhile commodities are incredibly dear and difficult to obtain even at inflated prices. There is a scarcity of the very necessaries of life. Industry and commerce are in disorder; manufactures are insufficient and their products often subject to excessive profits. There is a shortage of labour and yet there is extensive unemployment; and the working-class is in a state of chronic unrest.

The politicians' explanation of the prevailing economic confusion is that it is due to the war. And so it is—indirectly. For the war allowed Collectivist institutions to be smuggled into our society under the disguise of "emergency measures." Infringements of individual liberty which would never have been tolerated under other conditions, were submitted to on patriotic grounds as part of the organization for national defence; and now after five years of discipline, the population appears to be unequal to the effort that is needed to shake off this Old Man of the Sea and recover its lost freedom.

But the assertion that the present collapse of social co-ordination is due directly to the war is utterly fallacious. The war has left its traces, for which we were all prepared. It has left the world poorer; its waste and industrial inaction have devoured our reserves of money and material; its cost has piled up a huge debt. But it is not these evils from

which the community is principally suffering. The muddle, the waste, the lack of social co-ordination, the failure of the normal social adjustments, the infringements of civil rights and personal liberty: all these are the inevitable results of the substitution of the official for the competent private individual. The present executive is giving a practical exposition of the economic conditions which prevail under Collectivism. If that exposition produces enlightenment, its efforts will not have been in vain.

2. *Forms of Government.*

From the economic aspects of Collectivism we may turn to take a glance at its form of government. This is usually assumed by Socialist writers to be of a purely democratic character. But if we consider the scheme of the Collectivist State, we shall see that it is irreconcilable with the essential principles of democracy. By Spencer, Individualism and Collectivism were described respectively as schemes of Voluntary and Compulsory Co-operation; and this terminology fairly states their essential characters. But the idea of compulsory co-operation is not reconcilable with that of democracy; for the latter implies freedom of action and the possession of political power and initiative by every member of the community. But, evidently, a man whose every action is subject to compulsion by an "Authority" cannot be conceived as possessing either freedom or political power; and, conversely, the Collectivist scheme could not be put into operation on a population each member of which possessed control of his own actions and exercised political power. The idea of compulsion carries with it the idea of rigid discipline; but the idea of rigid discipline is not congruous with that of democracy.

The conclusion which we thus reach by deduction is amply supported by experience. In our own State, the rise of Collectivism has been accompanied by the disappearance of democracy. Our present Government is an oligarchy pure and simple. It consists of a sort of incorporated society of professional politicians, practically self-appointed —for its members are appointed by one another—the evident purpose of which is to secure permanent possession of the machinery of government. And, meanwhile, the House of Commons, the representative institution which appertained to the vanished democracy, has shrunk to a

mere assemblage of paid supers who are content to draw their salaries and go through their little performances obediently to the orders of their masters, the oligarchs. It has become negligible: a mere minor appendage of the governing syndicate. And the government of that syndicate is a tyranny such as has not been known in this country since the rise of modern conditions. The individual has become a mere chattel of the State. His food, his clothing, his earnings, the prices at which he buys and sells commodities, his education, the transport of himself and his goods, his hours of work and leisure, the very tenure of his possessions; all are controlled and decided for him by the constituent autocrats of the oligarchy. As to his political power, it may be judged by a recent utterance of a leading politician, who, in speaking of an unusually emphatic expression of public opinion, referred to it contemptuously as " the clatter outside." And this classification of the State into the " inside " and the " outside "—the part which regulates and the part which is regulated—exactly states the position. The population at large may—as it does—disapprove of the proceedings of the Government, But its approval or disapproval is of no significance. It is a mere negligible aggregate of pawns, moved at the will of the players " inside."

That the establishment of Collectivism—of compulsory co-operation—is inevitably accompanied by the disappearance of democracy and the establishment of a tyranny, is evident on the examination of any large aggregate of men which has become subject to Collectivist conditions. If we wish to observe a typical instance, we may turn our eyes to Russia, where Collectivism has triumphed completely and has established a complete tyranny. Less representative examples are furnished by other Continental states whose normal co-ordinations have been dislocated by the war; and a very instructive case is furnished by the Trades Unions; which in the course of integration by the amalgamation of numerous small unions to form the great compound unions, have passed from the democratic state of voluntary co-operation to the oligarchic state of compulsory co-operation. Under the former conditions, the workmen, themselves, decided on and carried out their joint activities; under the latter conditions, the activities are settled and arranged by delegates and leaders, by the latter of whom the bodies of workers are " played " as pieces in a game,

the " moves " of which the individual workmen frequently do not understand or of which they even disapprove. In this, as in the other cases, we see that, whereas liberty and voluntary co-operation generate democratic conditions, compulsory co-operation, with its inevitable discipline, excludes democracy and generates tyranny.

3. *Effect of the Two Alternative Systems on the Individual.*

We now come to that portion of our comparison which bears more directly on our main subject. To the politician, the economic efficiency of the Collectivist State and the form of its government are matters of supreme importance. To the sociologist, on the other hand, these are, in a measure side issues, his concern being rather with its effects upon the human race at large. And since the human race is the total aggregate of human beings, and since its condition as to advance or retrogression is that of the human beings composing it, his concern is with the effects of Collectivism upon human beings, *i.e.* upon the individual.

We may usefully begin our comparison by considering the purely biological issues involved. First we may consider the individual as a unit of the Social Organism, and then we may glance at the factors of human evolution.

In our examination of the Social Organism in Chapter III., we noted that it is a compound organism of a type so low as not to be comparable to any other known organism. That its units are all identically similar (biologically), showing no trace of differentiation or specialization. That their mode of aggregation is completely discrete. And that all these characters are related to another character in the possession of which the Social Organism is unique; for we found that it differs from all other compound organisms in that, whereas the latter are complex aggregates of simple units, the Social Organism is a simple aggregate of complex units; and we find that " the relation between the complexity of the unit and that of the aggregate is a true correlation, so that alteration in one factor involves necessarily a corresponding but inverse change in the other; that increase of function and organization in the aggregate involves a corresponding decrease of function and organization in the units, and *vice versa*. And we further found that the loss or gain of function is evident principally in

respect of the higher functions—those of correlation—leaving the lower functions—nutrition and reproduction—practically unaffected." In other words, that an increase in the organization of the aggregate can be achieved only by degradation of the units and suppression of their higher functions.

Applying this conclusion to the terms of our comparison, we see that Individualism and Collectivism, respectively, affect the relation of the unit to the aggregate in exactly opposite ways. Under Individualism, not only is the structural simplicity of the Social Organism fully maintained, but the tendency is rather towards even further simplification; while, as to the individual, the reduction of State activities to an irreducible minimum, not only leaves his correlative functions intact but favours their further development. Contrariwise, under Collectivism the structural simplicity of the aggregate tends to be replaced by complexity as State activities multiply and State institutions increase and develop; while, conversely, the individual, as one after another his activities become transferred to the State, tends to become functionally simplified; and inasmuch as the simplification is achieved by the loss of the higher functions, it constitutes functional degradation.

Thus, whereas under Individualism the tendency is for man to progress towards a higher type with correlative simplification of the State, under Collectivism the tendency is for man to retrogress towards a lower type with correlative increase in the complexity of the State.

Now let us take a glance at the factors of Human Evolution. These are numerous and complex, and some of them are, at present, ill-understood so far as their causation is concerned. The causes of variation, and especially of those more abrupt deviations from the common type, known as "mutations," have not been completely unravelled; but, broadly speaking, the mechanism of evolution is fairly simple; for we are able to observe and understand the operation of the factors even though their ultimate causation is hidden from us.

Stated in simple and general terms, the mechanism of evolution has in the past been based on variation; upon the fact that, while offspring tend to resemble their parents in their main characters, they also tend to differ from them in detail. Thus, in each generation there appear individuals

who differ from the individuals of the preceding generation. These differences (variations) may be such as to render the new individuals better adapted to their environment than the old. These will be improved or superior individuals and the variation will be a favourable variation. On the other hand, the differences may be such as to render the new individuals less fitted to their environment than their predecessors. They will then be inferior to their ancestors, and the change will constitute an unfavourable variation. But, under natural conditions, the superior forms, being better adapted to their environment, will tend to survive, and by begetting progeny in the main similar to themselves, transmit their superior qualities to their posterity, whereby the race will be improved. Conversely, the inferior individuals, being less completely adapted to their environment, will maintain themselves with difficulty or not at all. They will, therefore, tend to die off and leave no offspring; whereby, again the race will be improved, since it will be relieved of inferior elements by which its average quality would have been lowered.

This process was named by Darwin " Natural Selection " and by Herbert Spencer " The Survival of the Fittest," but I prefer to speak of it as " The Elimination of the Unfit " since that is the distinctive feature of the phenomenon; for it is evident that the survival of the fit would be insufficient to secure the improvement, or even the stability in quality of the race, if the unfit also survived.

Considering the terms of our comparison in their relation to the evolutionary process, we see at once that, whether regarded as Natural Selection, the Survival of the Fittest or the Elimination of the Unfit, it is inseparably connected with Individualism. It was under purely Individualist conditions that the Human Race emerged from the merely animal state; that Primitive Man advanced to the condition of Civilized Man; that Civilized Man progressed and enriched the race with all its vast accumulations of wealth. The connection is obvious. Under Individualism, each individual maintains himself (including his family) and is completely responsible for his own maintenance. If he is capable, he maintains himself well and with ease; if he is incapable, he maintains himself ill and with difficulty. His conditions of life are determined by, and bear a necessary relation to, his personal qualities. There is thus a tendency for the inferior individual (and his offspring) to

become eliminated through failure to maintain satisfactory conditions of existence.

Under Collectivism no such elimination of undesirable forms tends to take place. Each individual is maintained, not by his own exertions but by the joint exertions of all the members of the community. His conditions of life are determined, not by his own personal qualities, but by the collective personal qualities of all the members of the community. The superior individual derives no advantage from his superiority, the inferior individual suffers no disadvantage from his inferiority. Both, equally, are guaranteed complete maintenance by the State; both, equally, tend to survive. If there is any difference between their conditions it is in favour of the inferior; for since he puts out less effective effort for the common maintenance than does the superior individual, the latter is called upon for additional effort to make up the deficiencies of the former.

Thus, viewed in the light of biology, Collectivism is seen to possess the eminently unsatisfactory property of tending to lower the quality of the race; which it does, on the one hand, by developing the organic type of the aggregate at the expense of that of the individual; and on the other hand by hindering the elimination, and securing the survival, of the unfit.

Having disposed of these biological preliminaries it is now possible to compare the two systems in terms of their respective social phenomena in so far as these affect the individual. And first we shall note that whereas the foundation of the Individualist system is liberty, and that of the Collectivist system equality, these two conditions are in a large measure mutually exclusive. Liberty tends to exclude equality: equality tends to exclude liberty. Under Individualism, the natural inequalities of men tend to produce economic inequality. The capable, the industrious or the thrifty man benefits by his superior qualities and prospers. The incapable, indolent or thriftless man suffers the consequences of his inferiority and fails to prosper. He may quite possibly be exploited to his disadvantage by the more capable man. Each has full liberty to pursue his own welfare, and he who does so with the most ability and the greatest effort attains it most completely, thereby gaining an advantage over his less able and less energetic fellows. Thus liberty tends to create economic inequality.

Under Collectivism, on the other hand, special ability and energy is at once countered by the State; which absorbs the excess products of the energetic and capable man's efforts and distributes them impartially to the energetic and indolent alike. But this is an infringement of the liberty of the energetic man, for it prevents him from achieving the presumed objects of his additional efforts—the attainment of increased prosperity.

This loss of liberty as a correlative of the attainment of equality, is characteristic of the Collectivist State and its institutions. Each member of the State receives unconditional maintenance, but over the scale of that maintenance he has no control. Food, clothing, house, education and other benefits are supplied to him; but the quantity, quality and character of the commodities supplied are settled by the State. He has no choice. His food is a ration, his clothing an "issue," his house the one allotted to him, the education of his children that furnished by the State. No effort of his can enable him to improve his condition. He is a fraction of the State and is entitled to the same benefits as every other fraction and no more. If those benefits are not of the kind that he wants, so much the worse for him. The equality of all is necessarily purchased by the sacrifice of the liberty of each.

But it is not only liberty that is sacrificed. The maintenance of an unalterable economic equality among the members of the community has further effects, both immediate and remote. A direct effect is the destruction of the principal motive of effort. Under Individualism, the actions of individuals produce consequences that immediately affect the actor. Effort, forethought, thrift, produce results which are operative on the person exercising them. If a man works four hours a day he receives the product of four hours' work. If he works eight hours, then he receives double the product. If he works strenuously his product is proportionately greater than if he worked languidly. If he exercises judgment in the use of material so that economies are effected, he spends less on material and gains to the extent of the saving effected. If he denies himself present satisfactions for the sake of future security, he bears the sacrifice and enjoys the reward; or if he prefers to gather the rosebuds while he may, then he enjoys those present satisfactions which he has chosen and pays the appropriate price. In all cases his actions are governed by the certainty

that their effects will operate on himself and cannot be transferred to others.

Under the Collectivist scheme exactly the opposite conditions obtain. The economic activities of the individual produce effects which are operative, not on himself but on the State. His industry, his thrift, his forethought, do not influence his personal well-being but only that of the State. The benefit is not experienced by him directly, but only indirectly and infinitesimally, in accordance with his fractional denomination in the State. The principal motive of human effort—that of immediate and direct benefit to the person making it—is therefore lost. The member of the Collectivist State cannot by taking thought add one cubit to his economic stature. Moreover, since the consequences of his efforts are remote and usually invisible to him, he lacks even that incentive to effort which is afforded by a visible result.

From the man who has made an effort and derived no immediate benefit from it, we turn naturally to the man who has not made an effort. What is his condition? Obviously it is exactly the same as that of the man who *has* made an effort. Both receive from the State complete maintenance and no more. But whence comes the maintenance of the man who has not made an effort? Obviously, it is the product of the effort of the other man. For all communities, whether Individualist or Collectivist, are ultimately maintained by the economic activities of individuals. The State can possess and administer but it cannot produce. But whereas under Individualism, each member of the community produces his own maintenance and can consume no more than he produces, under Collectivism there is no such necessary relation between consumption and production. Each hands to the State the products of his activities, great or small according to his abilities; and each receives an equal share of the total, without regard to the amount of his own contribution. If there is any difference in the amounts received for maintenance by different members, that difference will be an adjustment to differences in the needs of different individuals; and since the needs of an incapable person will tend to be greater than those of a capable person, the tendency will be for the less capable to receive, if anything, a greater share than the more capable.

Thus the effects of Collectivism upon the individual are

exactly the reverse of those of Individualism. Each member of the community puts the products of his economic activities into the pool, and the pool is divided evenly among all the members of the community. Evidently under this arrangement, he gains who takes out of the pool more than he puts in; he loses who puts in more than he takes out. The absolute gainer is the man who puts in nothing. The arrangement is favourable to the inferior man, unfavourable to the superior man and most favourable of all to the completely unfit man. That is to say that the benefits supplied by the Collectivist State to its members are inversely proportionate to the worth of those members to the State. For, as we have said, the State is maintained by the economic activities of individuals: and the individual who actually maintains the State is the one who puts into the common treasury more than he takes out.

The effect of the Collectivist system, therefore, is to set up conditions which tend to secure the survival of the man who is of least worth to the community (since he is enabled to live with a minimum of effort) and the non-survival of the man who is of most worth to the community (since he must put out enough effort to support himself and the worthless as well). But the survival of the superior man is the indispensable condition on which the community can continue to exist. His non-survival entails the non-survival of the community.

[NOTE.—That the statement of the Collectivist attitude towards the superior and inferior man respectively presented in this chapter is not caricature—which the reader unacquainted with Socialist literature might reasonably suspect it to be—will be made clear by a quotation from the very temperate and persuasive book on "The Socialist Movement" by Mr. Ramsay Macdonald.

Like most other Collectivist writers, Mr. Macdonald gives the totally inferior man a wide berth. But he tackles the problem of the superior man—the man of exceptional ability and skill—though with evident misgivings. Thus:—"He" (the Socialist) "may admit that, generally speaking the effort of, say, a first-class surgeon is not any more than that of an efficient navvy, though the skill of the former is far rarer than that of the latter, and is therefore rewarded to some extent as a landowner who can exact rent is rewarded." (Here occurs a footnote: "The wages of ability

are partly of the nature of rent, because they are the share claimed by a holder of a monopoly.") "He may further admit that it is quite conceivable that the attractions of the former calling are so great to certain types of mind, that they will be content to consider the mere opportunities to exercise their skill as themselves a precious reward, just as a healthy athlete requires no fee or prize-money to induce him to go a long walk" (p. 113).

From this it will be gathered that all that Collectivism has to offer the man of exceptional personal qualities (including industry) is the opportunity of exercising those qualities for the benefit of the community and to make up the deficiencies of those who do not possess them. Collectivism thus views the exceptional individual much as the old-fashioned school-book viewed the horse: as "a noble animal and useful to man." But under Individualism he is also useful to himself. Individualism is haunted by the danger that the inferior man may be exploited by the superior man; but the Collectivist, in avoiding this danger, runs into the much more serious one of allowing the superior man to be exploited by the inferior.]

CHAPTER XI

THE UNFIT

WALKING through the Natural History Museum, one encounters the skeleton forms of strange, uncouth and often gigantic beasts that exist no longer in the flesh, that are seen no more in their former haunts and have left no trace but these bones to show that they ever were. They are the failures of the past; the forms that, ceasing to maintain a satisfactory adjustment to their environment, faded away in the presence of better adapted competitors. In their own period, they were the Unfit; and accordingly they failed to survive. And from their soil-stained bones, we who yet walk the earth and in our pride think of it as our very own, may read a message and a warning. For they remind us that no organism enjoys an unconditional vested interest in its habitat, but that continued existence must be purchased by strict conformity to certain unchangeable laws, by the maintenance of a continuous adjustment to

an environment that, in its large essentials, can be neither altered nor controlled. And, as from these skeleton shapes with their silent message, we let our thoughts stray to the period of human history in which we live, we may ask ourselves whether perchance it may be that in some museum of the remote future, Man, himself,—*Homo sapiens*, but not, alas ! *sapiens* enough—may make his final appearance " under glass " in company with the Dinornis, the Mastodon and the Deinotherium, as a relic illustrating the animal forms of a half-forgotten past.

In primitive conditions the fitness or unfitness of man was determined by the same tests as those which applied to the lower animals. He who could maintain himself and his progeny was fit and survived, he who could not maintain himself was unfit and failed to survive. But in developed societies of men this simple test of fitness is not sufficient. It is still valid and applicable. It has not lapsed, as some appear to believe. But it is no longer the sole and sufficient test.

Among the lower animals, forms have survived which are destructive to the rest of the animal population. Apologists of the " Divine Artificer " seek to explain their survival as depending on some undemonstrated utility in the " scheme of creation." But this explanation is founded on a mistake. Organisms do not survive because they are useful to other organisms, but because they are useful to themselves. Their adjustments to their environment are exclusively self-regarding; and destructive forms, such as Carnivores and Parasites, have survived because they are capable of self-maintenance. Inasmuch as they wring a subsistence out of the rest of the animal kingdom, they are biologically fit. But their human analogues cannot be accepted as socially fit.

Thus, in the case of members of a society, fitness or unfitness may be considered in two aspects: the merely biological and the social.

The biologically fit will include all persons who are capable of maintaining themselves completely by any means whatsoever; and conversely, the biologically unfit are those persons who are incapable of so maintaining themselves.

The socially fit include all biologically fit persons whose self-maintaining activities are completely compatible with, and even advantageous to, the exercise of similar activities by their fellows; and the degree of the social fitness of any given individual will be determined by the extent to which

his existence and activities are positively advantageous to his fellow-citizens. So, conversely, the socially unfit include all biologically unfit persons, and those biologically fit persons whose activities are disadvantageous to their fellows.

From this it appears—since the greater includes the less—that the indispensable factor of social fitness is the power of self-maintenance—biological fitness; but that this quality is subject to the condition that the self-maintaining activities must be such as can be carried on simultaneously by all the members of a community without mutual hindrance but rather with mutual advantage.

The unfitness for satisfactory social life which the absence of these qualities implies affects two entirely different classes of individuals, one only of which is usually associated with the idea of unfitness. The capable, self-supporting individual, who subsists by activities injurious to his fellows is in an entirely different category from the incapable, and gives rise to entirely different social problems. And though his defects of character are, of course, more or less inheritable, he does not form a permanent class. The millionaire who has become rich as a member of a food combine, whereby life has been made difficult, unhappy and unhealthy for thousands of his fellows, may be descended from decent ancestors and may conceivably beget decent offspring; for many of his qualities—energy, foresight, thrift, etc.—are excellent, and the callous egoism which has led him to prey on society, may be but a temporary aberration which may be corrected in the next generation. In general, the phenomena which this anti-social type exhibits are individual rather than collective; they have little connection with the main subject of the present chapter; and as they have been dealt with at some length in earlier parts of this book, we may pass on to the consideration of the other types, merely noting that the capable but anti-social man is properly one of the socially unfit.

In the case of the incapable, those who are deficient in the power of self-maintenance—who are unfit in a biological sense—we have to deal with an actual permanent class. The mental and physical imperfections which constitute their unfitness are inheritable characters, clearly traceable to their ancestry and transmissible to their posterity. It is this continuity, the certainty that the present generation of the unfit will engender a posterity of equal unfitness, that gives this class its sociological importance. The capable

but anti-social man is to a large extent classifiable, like soldiers, lawyers, doctors, etc., in terms of his activities. But the biologically unfit man is unfit to his very germ-plasm. He forms a variety of the human race which breeds true to its character of unfitness.

The individuals of the class which we are now considering fall into two groups, the abnormal and the normal; which, though well marked in typical cases, tend, nevertheless, to pass into one another by insensible gradations, just as the unfit as a whole pass by insensible gradations into the fit. The abnormal group is formed of individuals who present some gross deviation in structure or function from the characters of a completely normal human being, whereas the normal unfit present no such gross deviation and differ from the normal and fit only by defective quality and especially by a more or less rudimentary mental condition.

With the abnormal unfit I shall deal somewhat briefly, not because the subject is of small importance, but because it has been treated very completely by competent authorities, has attracted considerable public attention and has even been noticed by the Legislature. A short statement of the facts and the obvious inferences is therefore all that is necessary here.

The group comprises lunatics, idiots, imbeciles, the feeble-minded and "backward," epileptics, deaf-mutes, the congenitally blind, and the large class of degenerates, which includes the bulk of the habitual criminals, the inmates of reformatories and industrial homes, tramps, vagrants, chronic inebriates, prostitutes, the subjects of drug-habits, sexual perverts and sufferers from various congenital neuroses. There is no need to enter into any description of the various types, but the following facts may be noted as applicable to the entire group.

1. The class of abnormal unfit forms a very appreciable fraction of the population of the country. In the Census Returns for 1901 the total number of mental degenerates in the United Kingdom is given as 483,507. The number of degenerates to the population is given as 1 in 85, but is estimated as probably not less than 1 in 50. And it is to be observed that this number includes only sufferers from defects of the nervous system and takes no account of inherited bodily deformation.*

* These figures are quoted from "Race Culture or Race Suicide," by Dr. R. Reid Rentoul, who includes in them all forms of mental degeneracy, such as crime, vagrancy and prostitution.

2. The members of this class are all more or less parasitic upon the normal individual. In the case of lunatics, idiots, imbeciles and certain other forms, the parasitism is complete. The defective individuals have no self-maintaining powers whatsoever and require to be tended like sick children. In other cases the self-maintaining powers are feeble and unreliable, while in the case of the habitual criminal, the parasitism on the fit is of an aggressive and destructive type.

3. No legal or other impediments to the propagation of this class exist. Lunatics are permitted to marry and do marry. Thus, out of the total of 117,274 lunatics in the United Kingdom shown by the Census Returns for 1901, no less than 46,800 were married or widowed—more than one third of the total number. And not only are there no impediments; in many cases degenerate persons are encouraged to marry. A clergyman connected with an institution for deaf-mutes mentioned to me the number of happy marriages that had been arranged by him between the inmates; and among the feeble-minded, marriage is often encouraged on "moral" grounds. The Census Returns for 1901 show that out of a total of 60,721 idiots, imbeciles and feeble-minded persons in the United Kingdom, 18,900 were either married or widowed. Lunatics who are discharged from asylums, "cured" or otherwise, if married are permitted to resume marital relations without any safeguards against reproduction; criminals and inebriates released from prisons or homes, return to their haunts with a like freedom; and, for obvious reasons, feeble-minded women are prone to give birth to illegitimate children.

Thus the abnormal unfit are a somewhat prolific class, and it is not surprising to find that its numbers are increasing. That this is actually the case in respect, at least, of the insane, is shown by the Census Returns. In 1871 the number of lunatics per 100,000 of the population of the United Kingdom was 234; at the Census of 1911 it had increased to 388. The figures for England and Wales are: 1871, 303; 1911, 449.

Apart from the burden of their maintenance, the existence of persons of this class is disadvantageous to Society as constituting a hindrance to social order and the general welfare. In the case of the habitual criminal this is quite obvious. But the whole class of the abnormal unfit tends

to generate undesirable social conditions. The lunatic, discharged from the asylum on improvement or apparent recovery, creates public and private disturbance when the next relapse occurs; the idiot or imbecile, if at large, needs supervision and is apt to give rise to disorder, and to get into mischief; the feeble-minded woman or girl requires constant watching to prevent her from producing an illegitimate brood of undesirables. And the preventive measures are commonly highly ineffective. The epileptic is a source of danger to himself and of distress to others during his convulsive seizures; while, during the post-epileptic state of automatism he may, without consciousness or subsequent recollection of his actions, perpetrate crimes of the most appalling atrocity.

But epilepsy is not the only neuropathic condition that is associated with atrocious crime. The association is well marked in many forms of sexual degeneracy. The sexual invert is apt to be indirectly the producer of homicidal tendencies in his associates. The pervert of the "Sadist" type is addicted to acts of horrible cruelty followed by murder, often repeated in a series and carried out with remarkable cunning and caution, as in the case of the notorious "Jack the Ripper"; while other types of the sexual degenerate tend to create a public nuisance and scandal of a kind well illustrated a few years ago by the institution known as "The Abode of Love"; and in other ways, which it is not necessary to specify, to disturb public order and decency and to menace the safety of individuals.

Less dangerous than the preceding, but still a serious public nuisance, is the chronic inebriant and the closely allied drug-habitué; for whereas the former is a creator of overt public disorder, constantly recurring for years, the latter is apt to set up sinister associations which constitute foci of moral infection. The circumstances connected with the death of the young actress, Billie Carleton, will be fresh in the memory of most persons.

Finally, in addition to the interference with public well-being by these specialized types there are the anti-social influences of the more generalized forms; the chronic nuisance and occasional danger, produced by the tramp and vagrant class; the offences against public decency and the spread of serious disease by prostitutes, as well as the dangers which arise from their association with criminals; and the public

disorder and social unrest occasioned by the morbid activities of degenerates of the destructive or " Bolshevik " type.

Of all the unfavourable influences which the abnormal unfit exert on society by far the most grave is the deterioration in the quality of the population to which their existence gives rise. We have seen that they are a somewhat prolific class and that their numbers are increasing relatively to the normal class. We have also seen that a considerable proportion even of the most extreme forms—lunatics and imbeciles—are married. Now, if they married exclusively within their own class—if lunatic married lunatic and imbecile married imbecile—the case would be bad enough. But they do not. In the majority of cases the lunatic or imbecile or degenerate is married to a normal person who, in suitable conditions, would have been the parent of normal children. The result of such a marriage is a family of tainted offspring. Of these offspring some will be lunatics, imbeciles or well-marked degenerates, while others will be merely neurotic or apparently normal. The apparently normal will pass as actually normal and may marry normal individuals. But they are not normal. The ancestral defect —insanity, imbecility or other abnormal character—which had become latent in the one generation, will become active in a succeeding generation, either in its original form—insanity, etc.—or in some other neuropathic condition; the extending branches of the family tree will bear such fruit as imbeciles, epileptics, deaf-mutes, degenerates, criminals, wastrels, with a proportion of merely eccentric or peculiar, incapable or violent tempered persons. And should any of these descendants chance—as will most probably happen—to marry a person with a similar ancestry, the reinforced inheritance will almost certainly manifest itself in a new crop of insanity.

Thus the abnormal person is the centre of an area of personal deterioration which spreads out into the normal population. He is surrounded by a sort of penumbra of inferiority which extends with gradually diminishing intensity through the degenerate and the normal unfit until it fades away into the completely normal—unless it should intersect another penumbra; in which case a new centre will be formed. Every abnormal individual who marries and begets children, transmits to several succeeding genera-

tions extending over an ever-widening area, a strain of abnormality and inferiority; and when we consider the number of such individuals in our population, we perceive a sufficient explanation of the fact that the race fails to improve, or even maintain its quality.

A peculiarity in which this class differs from the normal unfit is that in a certain proportion of cases the abnormal characters may be accompanied by qualities of a distinctly superior kind. Many lunatics are persons of considerable ability in certain directions and some are really talented. Even genius of a minor degree (if such an expression is admissible) is not incompatible with insanity or degeneracy. The poet Cowper supplies an instance in the field of literature which is by no means a solitary one; while the recent Post-impressionist, Futurist, Cubist and other "progressive" movements furnish an example in the domain of art—though in these cases the neuropathic element is more conspicuous than the artistic.

But it is very necessary to bear in mind that mental brilliance or even talent is no answer to the charge of unfitness. The gifts of the mental deteriorant, be they never so great—and in fact they are never of the highest class—are no set-off to his abnormality. The injury that he inflicts on the race through a degenerate posterity is greater than any compensating benefit that his talents can confer.

Passing from the abnormal to the normal unfit, we note a well-marked contrast in the characters of the two classes. The former group is in a high degree heterogeneous, including such extreme forms as the idiot and imbecile at the one end and the cultivated, talented higher degenerate at the other; whereas the latter group is fairly homogeneous, its members differing from one another in little but the degree of unfitness. But again I must emphasize that the two groups melt into one another insensibly, as both melt insensibly into that of the fit and normal.

The abnormal unfit we have seen to be those who, in structure or function, present some gross deviation from the characters of a completely normal human being—of a person who could be accepted as a standard specimen of the human race. The normal unfit present no such deviation. In a typical example all the normal structures and functions exist and none of an abnormal character are added. This being the case, it may, not unreasonably, be asked, Wherein

lies the unfitness? And in what respect does the normal unfit man differ from the completely normal and fit man?

The answer is that it is simply a question of degree—of general quality. Among the units of the population there is a long range of difference of personal quality both bodily and mental. At the one end of the series is the man of commanding intellect, the thinker, the philosopher, the discoverer; in the middle is the great mass of the mediocre; while at the other end, the population tails off into the manifestly inferior and defective. It is here that we find the normal unfit man. He is not a lunatic or an epileptic or a degenerate; he has all his faculties, such as they are; he is simply what our American cousins would call "low grade." He is a comprehensively inferior human being. And as we are accustomed to speak of a man whose bodily and mental qualities are such as to lift him far above the common level, as a super-man, so we may conveniently refer to one who is to a like degree below the average as a sub-man.

Now the importance of the sub-man in the economy of Society is not generally appreciated. The hindrance that he creates to the common welfare; his sinister influence in the present and the menace that he holds out to the future; are by the immense majority of persons almost completely unrecognized. And the reason for this I take to be a failure to realize his numerical strength. The abnormal unfit have, as I have remarked above, already attracted considerable attention. Their present numbers and the rate of their increase have even occasioned some, very natural alarm. Yet, numerically, they are probably not more than a fiftieth of the population, and their increase, as an entire class, is not extremely rapid; whereas the normal unfit—the class of men who are conspicuously below the average of the race—are probably nearer a fifth of the population, if not more, and are the most prolific class in the whole community.

Since, therefore, the normal unfit are already a large class and are increasing more rapidly than the fit, it is evident that their numerical preponderance over the latter is only a question of time; that is to say that if the existing conditions are maintained for a few years longer, the normal unfit will form the majority of the population, while the fit will be in a considerable minority. Whether such a state of affairs would be compatible with the continued existence of the community we need not now enquire.

That is a matter for subsequent consideration. At the moment we are concerned with the sub-man and his influence on Society.

Previous to the war, the actual contact of middle-class men with the members of this social group was usually limited. Even medical men commonly encountered them in comparatively small numbers excepting in certain kinds of industrial practice. That they formed a large class was obvious from the extent of slum areas in cities, from the peculiarities of certain industrial towns and quarters and from the conditions prevailing in rural districts. But the war assembled them in large bodies detached from their usual surroundings. My first opportunity for studying the British sub-man in solid masses came during the last two years of military service. In the first two years appearances were somewhat deceptive, for the personnel of the early units included an appreciable proportion of middle-class men and superior artisans.

But when the volunteers had all been absorbed and the Military Service Act came into force one began to realize the quality of the rural and industrial population. Of course, these later units were not entirely composed of sub-men; but the general average of quality was low and the proportion of abjectly inferior types was disconcertingly large.

Of the latter, a good many hovered on the indefinite boundary between the normal and abnormal. Such were the cases of "defective intelligence" or "mental deficiency" which cropped up continually when drafts were being examined; the cases in which the persistence of infantile habits made necessary special sleeping arrangements (these cases were surprisingly numerous); cases of muscular tremor, neurasthenia, "nervousness" and a tendency to weep on small provocation. But apart from these "borderland cases" was a vast number of individuals who were simply of inferior quality—sub-men. These tended to be physically poor, undergrown and weedy, though a considerable proportion were well-developed as to their muscles. Bad teeth were the rule, and many quite young men were almost completely edentulous. Apparently their teeth had been imperfectly calcified owing to rickets in childhood; an inference that is supported by the fact, recently demonstrated, that over 80 per cent. of the children in Board Schools are afflicted with rickets.

They tended to sweat excessively and their feet were soft, clammy and malodorous. Multiple corns, callosities, bunions, deformed toes and other conditions due to neglect were extremely common and were associated with an extraordinary incapacity to take common care of these important members. Chiropodists had to be supplied to do for these men what an ordinary man does for himself. In the " young soldier " battalions I met with a considerable number of cases of delayed adolescence, lads of eighteen and nineteen having the character of boys of twelve.

Psychically, the British sub-man presents many resemblances to aboriginal primitive man, but with certain differences. His mental condition generally is rudimentary. He is quite unable to take in a general idea even of the simplest kind. A number of data or instances presented to him remain separate in his mind; he cannot compare, collate or generalize from them. And since propositions remain in his mind separate and unconnected, he is practically unable to reason and is insusceptible to demonstration or proof. For the same reason he cannot grasp a principle; he cannot get beyond particular cases. On this account I found it impracticable to lecture to the later R.A.M.C. units (mostly formed of low category labourers). No instruction was intelligible. A simple illustration might be grasped but its connection with the truth that it illustrated could not be perceived. An attempt to explain the circulation of the blood by comparison with a system of water-pipes left the audience with the belief that the lecture was on the subject of water-pipes. Moreover, the sub-man's vocabulary is extremely limited; he is astonishingly ignorant of the meanings of quite ordinary words, and in respect of the words that he does know, his ideas as to their connotations are apt to be extremely nebulous. When a guide informed me, concerning a certain doubtful path that it was " all right for Presbyterians," I was somewhat puzzled until I realized that he meant " pedestrians."

The British sub-man presents certain curious parallels with the African negro. When I first landed in West Africa I was at once impressed by the large proportion of men who stammered. So when I first encountered the conscript units of low-type Britons, I was struck by the large proportion of stammerers. And both the negro and the sub-man present an evidently related peculiarity; they tend to " jabber "—to speak with abnormal rapidity and to

articulate imperfectly. And both appear to be unable to control this tendency. A statement or even a name which is not understood, is repeated again and again at the same speed and with the same indistinctness. Thus the confused spelling of place names on maps of Africa has the same cause as the variability of nominal rolls—the imperfect articulation of the low-type man.

Again, like the African, the sub-man is quite indifferent to or unconscious of noise. He sleeps or rests undisturbed by loud talking or singing; and conversely, he has no idea of modulating his voice in a ward or a tent full of sleeping men. He appears to enjoy mere noise and is himself never quiet by choice. He continually sings, whistles, stamps, drums on tables or walls or makes noises with resonant objects or primitive instruments such as mouth-organs. On the other hand, he is usually quite devoid of musical faculty and has no singing voice as distinct from ordinary shouting.

Another primitive trait is his rudimentary conception of cleanliness. In the merely ablutionary sense he is not usually unclean, but in other respects his habits are like those of savages or the lower animals. If thirsty, he will drink almost any water, and will eat or drink from vessels in common use or take " sups " from a bottle passed round until it is emptied. He cannot be induced to keep dirty hands away from wounds or sores but paws them continually whenever they are uncovered, thus transferring infective or septic matter from one part of his person to others.

Usually the sub-man can read and write a little—not a very valuable accomplishment in the case of a person of conspicuously low intelligence—but a certain number of men were observed who could do neither, and one man could not tell the time by a clock. It is hardly necessary to remark that, at the present day, complete illiteracy implies a profound lack of intelligence since it cannot be due to want of opportunity.

Compared with the African negro, the British sub-man is in several respects markedly inferior. He tends to be dull; he is usually quite helpless and unhandy; he has as a rule no skill or knowledge of handicraft or, indeed, knowledge of any kind. The negro, on the contrary, is usually rather sprightly and humorous. He is, of course, illiterate (excepting in the Moslem districts) but he is generally well-informed as to the fauna and flora of his region and nearly always knows the principal constellations. He has some

traditional knowledge of religion, myths and folklore and some acquaintance with native music. He is handy and self-helpful; can usually build a house, thatch a roof, obtain and prepare food, make a fire (without kindling material or matches), spin yarn and can often weave cotton cloth and make and mend simple implements. And, physically, he is robust, active, hardy and energetic.

Thus the sub-man of our own race compares, on the whole, unfavourably with the average negro. But the negro race is admittedly far inferior to any white race; so much so that at least one good observer has proposed to consider it as a sub-human species. Whence it follows that the sub-man, though he presents no gross deviation in structure or function from the normal type, exhibits a general deficiency in the higher human characters that amounts to a somewhat extreme degree of atavism. He has retraced the path of evolution to a point that is beyond the ken of history.

Before proceeding to consider the effects produced on society by the existence of the sub-man it will be well to anticipate one or two obvious criticisms. In the first place, it may be objected that the unfitness of the sub-man in a biological sense has not been proved; that, on the contrary, since the power of self-maintenance has been adopted as the crucial quality and the sub-man usually performs some self-maintaining activities, he might claim to be classed among the fit.

The answer to this criticism involves several considerations. First we must note that the designation "unfit" does not connote a total absence of the power of self-maintenance, but only a deficiency; lack of the power of *complete* self-maintenance. And this leaves us to determine what we mean by "complete self-maintenance."

The sub-man, with practically no exceptions, gains his livelihood—if he does so at all—by unskilled manual labour, that being, in fact, the only occupation that is possible to a man of extremely low intelligence. But, as we have seen, manual labourers, as a class, are not completely self-supporting. They receive various aids from "The State"—*i.e.* from their fellow citizens. Their actual earnings are supplemented by gifts, implied in the various State "schemes"; free education, the old age pension, insurance and medical treatment, unemployment pay; to which will presently be added a substantial portion of the rent and various other

benefits. The assertion, therefore, that the sub-man is capable of complete self-support creates this dilemma: if it is true, these supplementary gifts are not necessary; while if his partial maintenance by the subscriptions of his fellows is necessary, then he cannot be capable of complete self-maintenance.

But what is complete self-maintenance? In connection with a complex society such as ours, it is difficult to say. A man who sweeps the roads or who picks up fragments of paper and other litter in a public park, receives payment for his labour and may be regarded as self-supporting. In the days when there was no unemployment pay, men used to obtain a livelihood by carrying "sandwich boards" through the streets. For this no faculty was required but the bare capacity to walk. Was this "complete self-maintenance"? In a biological sense it certainly was not. These men were enabled to subsist by certain artificial conditions adapted to their unfit state. In the absence of those conditions they sought the casual ward. Their lack of faculty rendered them totally unadaptable to changing conditions and their power of self-support had no permanence or stability. In a rigidly individualist state they would, sooner or later, have starved. And so it is with the totally unskilled labourer. His existence is made possible by the more complex activities of the capable class. He has no power to extract an unconditional subsistence from his environment, for his muscles represent his entire equipment.

We must therefore conclude that the power of complete self-maintenance implies the possession of such a degree of intelligence as will enable its possessor to adapt his activities to varying conditions and not require the conditions to be adjusted to his deficiencies; of such an amount of mental faculty as will make his self-support practically certain in almost any circumstances. But since the sub-man is conspicuously deficient in intelligence and faculty, he must be regarded as incapable of complete self-maintenance and is therefore, in a biological sense, unfit.

Another criticism that may be anticipated is that of the ambiguity of the qualities ascribed to the sub-man. Seeing that our population presents every degree of intelligence and stupidity and that the normal unfit are separated by no definite boundary from the fit, it may be asked, at what point does unfitness begin? Obviously, a quantitative statement is not possible. No instrument of precision by which

intelligence could be measured has yet been invented. But the question would seem to invite a certain amount of blunt speaking. Six thousand years ago, and indeed more, various large tracts of the earth's surface were occupied by populations having evidently a good average of capability. In those six thousand years, with ever-increasing opportunities, with ever-multiplying means of advancement, there should have been achieved a substantial improvement in the quality of the race. No such improvement has taken place, but it seems highly probable that the average has been appreciably lowered; and in this twentieth century a considerable part of our population is of such wretched quality that, under conditions such as obtained in those earlier times, its members would be unable to maintain their bare existence. They can exist only as parasites upon the more capable members of the population. To these, there can be no question that the designation "unfit" is properly applied. But when from the undeniably unfit sub-man, we pass to the contiguous classes, we may still experience some scruples in employing the word fit. A large proportion of artisans and shopkeepers who are perfectly capable of self-maintenance under present conditions, display a rudimentary condition of mind that is not appropriate to this late period of our racial history. Their mental undevelopment is apt to be masked by their acquirement of some of the knowledge with which the mentally fit of the past and the present have enriched mankind. But if, disregarding these extrinsic qualities, we focus our attention on the intrinsic; the reasoning faculties, the powers of observation, adaptability, resourcefulness, ingenuity and inventiveness; and compare them as to these quailties with the men of the remote past; we shall hardly escape a suspicion that here, too, at least in an evolutionary sense, we are dealing with the unfit. For surely a man who, in this twentieth century, is not up to the average quality of a civilized race of five or six thousand years ago—to say nothing of the obviously capable cave-men—does not justify his survival. There ought not to be any such person.

Reactions of the Unfit upon Society.

When the vicissitudes of the human race are considered broadly in respect of their causation, the one salient fact that emerges is this: That the overwhelmingly great majority of

the evils which have afflicted humanity in the past and hinder its welfare in the present are due to the existence of the inferior human being.

This, it may be said, is not a particularly novel discovery; and I freely admit its obviousness. But if there exists any general recognition of this truth, there is not the faintest indication of its realization into practice. And since a belief which fails totally to influence conduct may fairly be assumed to be lacking in intensity, it cannot be amiss to restate the case.

To point out that our police institutions, our criminal courts, our prisons and reformatories, with all the expensive and burdensome precautions against fraud, robbery and violence, are the direct and exclusive result of the existence of the inferior human being, would be a mere platitude. But in other directions the pernicious influence of the low-type individual is less obvious. Yet, wherever there is found some condition by which the happiness and well-being of mankind are reduced, investigation will, in nearly all cases, reveal the existence of the inferior man as the ultimate cause.

A general glance at human history will show it to be characterized by an alternating series of antagonistic influences, the resultant of which is the present environment of humanity. On the one hand there has been a succession of out-crops—so to speak—of individuals and peoples of a superior type, by whose constructive energies the race has been enriched and its environment altered for the better. On the other hand there has been a similar succession of out-crops of inferior peoples and individuals, by whose destructive energies the products of the activities of the more gifted peoples have been destroyed and the environment of the race altered for the worse. The superior man has left the world richer than he found it; the inferior man has left it poorer.

Historical instances will occur to every reader. The splendour of Babylon, built up in the course of centuries by a wise, ingenious, cultivated race, and swept away in a few weeks by the mad-man Sennacherib, and his Assyrian ruffians. The patient and gifted craftsman of Egypt toiling to create imperishable—but not indestructible—wealth as a gift in perpetuity to the race; and the sordid tomb-robber cancelling the gift in petty greed or in sheer destructiveness. The bequests of Ancient Greece were enough to have enriched

the whole world for all time. The few mutilated remnants that survive—the splendid fragments, which as Jane Harrison so happily expresses it, "are at once the inspiration and the despair of the modern artist"—are just enough to show us what the world has lost—and lost for ever. For those inimitable works were the products of a unique people, living under unique conditions; they were the harvest of a summer that will never return. And how were they lost? On the one hand they fell by hundreds under hammer-blows dealt by fanatic fools who offered the shattered remains as sacrifices to their own egotism; on the other they have been consumed by a dull, ungifted race as mere material. The master-works of genius have been burned into lime or broken into rubble to build the walls of Turkish hovels and block-houses.

One of the most striking instances is even now before our eyes. But a few years ago Flanders and Northern France were veritable mines of artistic wealth—museums of culture to which pilgrims wended from the whole round world. That wealth was the gift to mankind of the very elect of noble races in the zenith of their culture. It was the bequest of the intellectual princes of the earth and the human race was the legatee. And now that mine of wealth is destroyed utterly. Its cities are shapeless ruins, its cathedrals mounds of rubbish, its libraries fleeting ashes scattered by the winds. More desolate than Babylon or Nineveh or Memphis, it is the memorial of an orgy of idiotic destructiveness held by a rabble of—at least morally—inferior human beings, hounded on by a crazy degenerate.

But it is with the present and the future rather than with the past that we are concerned; and especially with the reactions of the sub-man upon the society of which he forms a part. These reactions we may consider in groups corresponding to the aspect of social life affected; and we will begin with the political and economic group.

Political Reactions.

Alike in the family and in the State, the fit are sacrificed to the unfit. In order that the unfit may live at all, the fit must live under conditions much less favourable than those which they would otherwise produce for themselves. In the family this sacrifice of the capable to the incapable is normal, inevitable and beneficial; and for a very obvious

reason. The incapability is only temporary. The incapable members are potentially capable; and the purpose of the sacrifice is to enable the potential capability to be converted into actual capability. The helpless infant is a potential adult. The sacrifices of the capable parent enable it to grow into an adult, when it becomes a parent and in its turn maintains a new generation. Thus every generation of self-maintaining adults is made possible by the sacrifices of the preceding generation; and the temporarily incapable child is of worth to Society in view of its potentiality for ultimate self-supporting citizenship.

In this respect the State presents no analogy to the family. In Society the relations of the capable and incapable are permanent, as are also their respective worths to the community. Each forms a permanent class—the supporting or giving class and the supported or receiving class respectively. There is no expectation that the wastrel who lives upon the rates will later develop into a rate-payer. The unfit man is permanently unfit, and he has neither actual nor potential worth to the community. He is simply a burden to Society and a hindrance to its welfare.

Applying these general propositions to the particular phenomena of social life, we note that the existence of the unfit reacts unfavourably upon political institutions and upon the conditions of life of the desirable population. The existence of the unfit involves the necessity of their maintenance. Now every unit of the population consumes what we may call a unit of maintenance, which is created by what we may similarly call a unit of productive effort. But, obviously, the existence of an individual who consumes his unit of maintenance but does not produce it, implies the existence of some other individual who produces more than the unit which he consumes. Excess of consumption over production by the one must be met by excess of production over consumption by the other; so that every unfit man who fails completely to maintain himself represents an additional effort put forth by the fit, over and above that which is necessary for their own maintenance. A large number of unfit persons represents a large amount of profitless labour on the part of the fit; and if the proportion of unfit persons to the total population becomes very large, the provision for their maintenance tends to become the principal activity of the fit.

And this tendency has already to a large extent become

realized. If we consider the recent, present and contemplated activities of the State (which represent the collective activities of the community) we perceive that they are principally concerned with the maintenance of those who are assumed (by these very activities) to be incapable of completely maintaining themselves. Housing schemes, motherhood endowment, compulsory education, old age pensions, unemployment pay, compulsory State insurance, State medical treatment and supervision, subsidized commodities, etc., represent activities which have no application to the completely fit. The capable man who supports himself and pays, in rates and taxes, his subscription to the upkeep of the State, consumes none of these "benefits." Broadly speaking, they represent the excess of effort on the part of the fit to meet the deficiency of effort on the part of the unfit for ensuring the complete maintenance of the latter. And, as I have said, they constitute the bulk of the collective activities of the community.

These unfavourable reactions upon social life are accompanied by reactions upon political institutions of an equally unfavourable character. In a democratic State the electorate will include a considerable proportion of voters who are incapable of complete self-maintenance. Such persons will tend to form a definite and coherent political body, since they will be united by a common purpose—that of securing complete maintenance independently of their productive efforts. This body will tend to develop great political activity since its members aim at obtaining subsistence by political means; and it will be a highly influential body by reason of its coherence and its clear political aims—for a coherent and active minority is of more account, politically, than a diffuse and inert majority. Moreover, the aim of such a body will be to create a set of political institutions adjusted to the needs of its members. And such institutions will necessarily be of a collectivist character. For whereas in an Individualist State the means of subsistence are conceived as being produced severally by each member of the community and applied to his own maintenance; in a Collectivist State the means of subsistence are conceived as the massed products of the efforts of the population collectively, to be distributed by the State to each individual according to his needs.

Such a political system is highly favourable to the unfit, since it secures their maintenance without regard to their

capability or energy. It is on the other hand highly unfavourable to the fit, since it necessitates their putting forth a considerably greater effort than is required for their own maintenance. But the completely fit man is the man who is of most worth to the community, which, indeed, could not exist without him; the partially unfit man is of incomparably less worth; while the completely unfit man is of no worth at all, but is merely a burden to the State and a hindrance to the common welfare. Hence a political system which is favourable to and encourages the multiplication of the unfit while it is unfavourable to and discourages the multiplication of the fit, is one which tends progressively to reduce the proportion of citizens who are of worth to the community and increase the proportion of those who are of no worth; a tendency which, it is needless to say, is profoundly anti-social.

And this tendency, too, has already become realized. A political system has come into existence which is adjusted to the needs of the incapable part of the community and is entirely unadjusted to the needs of the capable. Under the present collectivist regime the State activities are directed exclusively to the production of conditions which shall render this country a place in which the unfit can live in comfort at the expense of the fit.

Another of the political reactions of the unfit is the dissolution of social integrity with accompanying disturbance of social order. In Chapter II. I pointed out that our once united society is disintegrating into subordinate aggregates which are mutually hostile. Of these aggregates, the largest is the body known as "Labour," consisting of a considerable proportion of the manual workers, skilled and unskilled, of the country. Now it is impossible to disguise the fact that "Labour" is definitely and consciously hostile to the whole community outside its own ranks. We are not here concerned with industrial disputes between employers and employed, but with those political activities which are becoming the principal activities of Labour as a whole. In these Labour appears as a professedly militant institution. The speeches of even the moderate and responsible leaders abound in references to "fights" and "contests"; and it is obvious that the community as a whole is conceived as an antagonist. And this hostile conception is completely realized in practice. In the railway strike of 1919, for instance, the intention of the leaders—and apparently of

the strikers, too—was to starve the country into submission; to treat their fellow-citizens as a somewhat uncivilized invading army would treat an enemy population.

It would be absurd to refer to "Labour" as a mere body of sub-men. Obviously it is nothing of the kind, for its ranks include large numbers of industrious and intelligent artisans who are of the greatest worth to the community. But it is not these latter who give to Labour its peculiar anti-social political character. The better-class artisan is as a rule a good citizen and as such concerned in the maintenance of social order and the common welfare. The anti-social activities of Labour—"lightning" strikes, "direct action," and syndicalist schemes—are made possible by huge masses of men of low intelligence and unstable emotions who can be manipulated with ease by the directors of social disorder. The profound lack of the most rudimentary ethical conceptions which underlies these anti-social actions becomes manifest when we contrast the implied standard of conduct with that of the more intelligent classes. A strict analogy with the railway strike would be a general strike of the medical profession in the midst of a dangerous epidemic, for the purpose of enforcing higher fees. Such a strike would be eminently effective, but does anyone suppose that it would be entertained by medical men? Obviously it would not. To the higher type of man the urgent duties and obligations of citizenship take overwhelming precedence over mere considerations of personal profit. The average professional man would no more think of uniting with his colleagues to starve or otherwise gravely injure his fellow-citizens for profit than he would contemplate arson, highway robbery or murder as a means of increasing his income. Evidently, there is a deep and wide gulf between the standards of conduct of the professional classes and those of Labour.

It may be urged that the bulk of the men who collectively constitute Labour do not realize that in uniting to disturb the social order, they are committing a crime against their fellow-citizens; that their conduct is due, not to malice, but to a failure to understand the nature of their acts. And this, I believe, is to a large extent true. Certainly, in the case of the strike referred to, many of the strikers appeared to be quite unaware of the offence which they were committing against the public. But this very unconsciousness of the nature of a criminal act is, in itself,

evidence of the mentally rudimentary state of the actors. Completely undeveloped ethical conceptions are incompatible with even mediocre intelligence.

The inference from this seems to be that the anti-social character of Labour is due to the vast numbers of men of extremely low intelligence—mostly unskilled manual labourers—that swell its ranks. Men of this mentally rudimentary type, with correspondingly rudimentary ethical conceptions, tend to be totally devoid of any ideas of citizenship or social duty. Moreover, they tend habitually to associate themselves with and furnish support to those who make it their business to promote social disorder and unrest. Whence it follows that the sub-man is usually a radically bad citizen.

Social Reactions.

Passing now from those reactions of the normal unfit which operate through political channels we come to those which operate through general social contact. On the minor social reactions we will touch but lightly, merely noting the relation of this class, in a causative sense, with various unfavourable social conditions. Thus we observe that the normal unfit form, to a large extent, the culture grounds and centres of distribution of infectious disease; that slum areas, in addition to this direct effect, form " generating stations " for various vermin, and especially flies, by which some forms of disease are kept circulating; that slums and settlements of sub-men in general, besides furnishing convenient haunts for criminals, constitute, especially when they are large, a serious inconvenience to extensive adjoining districts by reason of the disorderly behaviour of their inhabitants.

But by far the most injurious of the reactions of the sub-man on Society is the debasement of the quality of the population which his existence occasions. This unfavourable effect is produced in two ways: (1) By simple numerical increase; and (2) By dilution of the fit population through intermarriage.

1. The mere numerical increase of the unfit in excess of the fit by reason of the more rapid reproduction of the former is in accordance with the biological truth that the higher organic forms multiply more slowly than the lower forms. But it must also be borne in mind that the unfit, if enabled

to survive by the productive efforts of the fit, are at an advantage as compared with the latter. For, whereas the unfit are partially or wholly relieved of the effort of self-maintenance, the fit have to maintain themselves and the unfit as well. And, in practice, the facts are in agreement with the theoretical considerations. The lowest birth-rate of the population is that of the professional class, consisting of high-type individuals who support themselves by the personal practice of high-skilled industry; the highest is that of the submerged class, the permanent poor and the lowest class of unskilled labourers. In other words, the lowest type of man is increasing the most rapidly; the highest type of man is increasing the most slowly.

2. Even more serious than this relative increase in numbers is the dilution of the superior classes by intermarriage with the inferior. For whereas by the first process there tends to be brought about a state of society in which the unfit will be vastly in excess of the fit, but in which there will still remain a nucleus of superior individuals; the second process tends to produce a universal lowering of the quality of the race, by which the superior will be altogether eliminated. It is true that both conditions are incompatible with the continued existence of Society, for before either of them could be established in a complete form the whole social fabric would have collapsed. But there is this important difference between them; that whereas the survival of a nucleus of superior individuals would render possible, even at the eleventh hour, a social reconstruction, the general deterioration of the race would constitute a condition quite hopeless and incurable. No remedial action would be possible. The extinction of the race would be inevitable.

It is therefore important to ascertain whether the factors of racial deterioration are in actual operation, and, if possible, to determine whether such deterioration is taking place. That an injurious effect on the quality of the population is being produced by the abnormal unfit, we have already seen. We have noted that each abnormal individual who begets offspring furnishes a tainted ancestry to a widely extended posterity, that he forms a centre whence personal inferiority diffuses out into the population at large. But this is also true of the normal unfit, and to a much greater extent. The abnormal unfit form but a fiftieth of the population; and all of them—lunatics, idiots, epileptics

and even degenerates—hold out clearly-visible danger signals which should warn off fit persons from contracting marriages with them. But the merely inferior—the sub-men—form probably as much as a fifth of the population and they hold out no such conspicuous danger signals. They are not manifestly different from the fit. They suffer from no definite disability which marks them off from the rest of the population. As a class, their physique is inferior, but well-formed and reasonably comely individuals are not uncommon. It is not on the physical side that their inferiority is conspicuous, but on the mental side. If their motor functions were no better than their psychical, they would have to be carried about in invalid chairs. But it is the mental qualities that most readily escape notice. Mere lack of intelligence forms but a trifling hindrance to marriage, even in the case of men; and in women it forms practically none. Indeed, I am disposed to believe that the principal agent of racial deterioration is the inferior woman, though it must be remembered that the sub-woman is nearly always the daughter of a sub-man.

Let us examine the phenomena somewhat more closely and see by what processes inferiority filters out from the mentally unfit into the superior class; how favourable variations, which should form the starting-point for superior strains, are cancelled by unsuitable unions. That such neutralization of favourable variations is constantly occurring, the experience of everyone must make clear. How often have we heard the remark made, in respect of some unusually gifted man or woman, that his sons are not to be compared with their father, or her daughters with their mother! And such remarks are often accompanied by an expression of surprise, the speaker having apparently overlooked the fact that every individual has two parents and is the product of a dual ancestry. Indeed this fact, so carefully observed and provided for by stock-breeders, appears to be almost completely ignored where the reproduction of the human race is concerned. And this disregard of the quality of prospective progeny seems unavoidable under existing conditions. For marriages tend to occur between young persons, as is physiologically right and proper. But this tendency has the disadvantage that, since the sexual functions reach maturity early while the intellectual functions mature late, the choice of a mate is apt to be determined by sex preferences unguided by knowledge or judgment.

It is here that the influence of the inferior individual becomes manifest, and here also the difference between the sexes becomes an unfavourable factor. The inferior woman is, in effect, sexually precocious. My impression is that she is actually so; or, what amounts in practice to the same thing, the superior woman tends to exhibit delayed sexual maturity, at least in respect of the instincts and impulses. At any rate, this is the effect. For the inferior woman attains physical maturity without developing the higher mental faculties; and as a result, the sexual instincts have exclusive possession. They are not subject to the inhibitory effects of the higher mental functions. Consequently, the inferior woman, as soon as she becomes sexually mature, is the subject of a single motive force—the simple physiological instinct; and in accordance with this, she applies her energies to a single purpose—that of obtaining a mate. Thus, in spite of her inferiority, she is at an advantage over the higher type woman in two respects; she is first in the field; and her apparent or real sexual precocity constitutes an attraction which makes her acceptable to the man of her own age. The higher type woman, on the other hand, in addition to her slowly matured sexual instincts, has a certain tendency to compete with man in his ordinary activities, to view him somewhat as a rival and even to develop a certain degree of sex jealousy and antagonism. This places her at a great disadvantage in competition with the lower type woman; who views the man simply as a male and is not concerned in any of his non-sexual activities. For marriage is a purely sexual transaction, at any rate in its earlier stages. And it is to be noted that the higher type man attains sexual maturity long before his intellect and judgment have become fully developed, and that the latter play an almost inappreciable part in his choice of a mate.

But apart from these considerations, the fact is that, in all classes, marriages tend to be determined by those mysterious and ill-understood phenomena known as sex preferences. A particular individual desires union with another particular individual of the complementary sex. The choice is not based upon an estimate of worth; it is not dictated by judgment; it may be directly and consciously in opposition to both. Sexual love is of the nature of a physiological impulse unconnected with reason. It takes no note of any personal qualities other than sexual. It even survives a complete demonstration and conviction of

personal worthlessness. It is, in its action, as mysterious and incomprehensible to the subject as to the onlooker.

The predisposing cause of marriage, therefore, is what the jurists call "access"—the opportunity of personal contact; the determining cause is the development of a sex preference. Of these, the former is obviously the only controllable factor; and at present, no control whatever is exercised. The unfit are in continuous personal contact with the fit. Intermarriage between them occurs freely, with the production of offspring which are generally inferior to the superior parent. Thus, favourable variations tend continually to be neutralized and the quality of the population brought down to a lower level. The great masses of inferior individuals radiate personal inferiority into the relatively superior classes immediately contiguous to them; whence, with somewhat lessened intensity, it is again radiated into the class of the definitely superior.

The Unfit Alien.

Before leaving our present subject, we may profitably bestow a glance on a profoundly sinister social phenomenon. For many years past there has been flowing into this country a steady stream of men and women of the lowest type—the very dregs of inferior populations. Until quite recently no attempt whatever was made to limit this invasion. These hordes of unclean wastrels, including a large proportion of diseased, destitute and criminal persons, were permitted freely to settle on this land like swarms of pestilential flies. Even after the Alien Immigration Act of 1905 there was little hindrance to the entry of these undesirables, for the Act contained so many exceptions and qualifications that it was quite ineffective in practice; and there is no very clear indication that the stream will not again begin to flow as soon as the necessary overseas transport is available.

These aliens are not in the least like those earlier immigrants, the Flemings, the Huguenots and other high type settlers, who were driven hither by the stress of political or religious persecution, and who enriched the land of their adoption with new industries. They are very largely natives of Eastern Europe—Russians, Poles, Letts, Finns, etc.—and a considerable proportion are Jews; and, as I have said, they are far from being the elect of their respective races. Indeed, their personal quality and their level of civilization

are, alike, extraordinarily low. Their physique varies from indifferent to bad, they tend to be neurotic, excitable and emotionally uncontrollable, many are definitely degenerate, many tuberculous or affected with diseases due to dirt, destitution and neglect. On arrival from their native countries, their habits are such as are unknown among the lowest British. When, some years ago, it used to be my duty to inspect the ships which brought the consignments of them into the Thames, I found myself for some hours after each inspection, uneasily watchful of my clothing and attentive to my cutaneous sensations. Even in prison reception-wards, I have not seen more unsavoury human beings and none so animal-like in habits. Commonly one met them wandering vaguely about the 'tween decks, feeding, with a fish in one hand and a potato in the other, gnawing at each by turn and dropping or spitting out fish-bones, potato-skin or other debris, just as a monkey might do; a habit which accounted partly—but only partly—for the layers of sticky, malodorous filth which covered the deck and concealed the planking. Their aspect was squalid in the extreme: the men pallid, greasy and generally unprepossessing, while of the younger women an appreciable portion were prostitutes and made no secret of the fact.

Of such material is a large part of the population of considerable areas of London made up. Whitechapel, with the adjoining Mile End, Bethnal Green and Spitalfields forms a colony in the East, while the older and rather more civilized settlement of Soho balances it in the West. And in both the magnitude of the invasion can be roughly estimated, as one walks through the streets, by the manifestly alien types that throng the pavements, the alien—mostly East-European—names over the shops, the contents of the shop windows and the public notices, shop-bills, newspapers and the placards outside places of entertainment, all in the Hebrew character and the Yiddish tongue.

The influence of this great body of low-class human beings is, in nearly all respects socially bad. They lower the level of civilization in the districts which they inhabit; they react unfavourably on industry by furnishing and employing sweated labour; they create lurking places for certain special types of foreign criminals—particularly the anarchist and generally anti-social type; and they, themselves, swell the ranks of the criminal class to an extent disproportionate to their number. Thus, in one year only

(1903) no less than 13,114 alien criminals were sent to prison in England. Moreover, the crimes committed by these immigrants from the relatively uncivilized countries of Eastern Europe tend to be of an atrocity unknown to the British "habitual." The Sydney Street crime may be remembered as an illustrative instance of robbery accompanied by wholesale homicide. And certain special forms of crime, such as procuration and the "white slave" traffic appear to be almost entirely carried on by aliens. Finally, one cannot forget how, during the air raids on London, the cowardly selfishness of these neurotic, emotional peoples contrasted with the dignity and courage of the native population.

Thus, in regard to general social welfare, the presence of the low-class alien is a highly unfavourable factor. He is, as to his habits and conduct, an undesirable member of the community. And if we add to this the fact that, by intermarriage with the native population, he tends further to lower its quality; that the colonies of low-type aliens form additional centres whence personal inferiority of an intense type tends to radiate out into adjoining classes; we shall conclude that the alien sub-man, diffusing racial as well as personal inferiority, is an even more potent anti-social factor than the indigenous variety.

As to whether an actual deterioration of our race has already occurred, and if so to what extent, it is almost idle to enquire; for the data are too vague and obscure to furnish a reliable conclusion. The statistical returns seem to leave no room for doubt that insanity and other forms of mental infirmity are increasing. But the collection of the material for these returns presents great difficulties and many factors of error, so that, as quantitative statements they must be accepted with a certain amount of reservation.

Again, the aspect of the labouring class, as witnessed by me during the war, strongly suggests an increase in the inferior elements of our population. I find it impossible to believe that, at any previous period, our community contained so large a relative number of men of this excessively low type. But there exist, so far as I am aware, no figures by means of which this impression could be supported or refuted. The tables of the Census Reports, admirable as they are, do not supply the required information. The

enquiries which they represent have proceeded along other lines.

So, too, the feeble, invertebrate quality of the population, as shown by its failure to resist the silly and exasperating tyrannies of the new type of executive; and especially the meek submission of the American people to the monstrous infringements of personal liberty entailed by the Prohibitive Laws; are suggestive of poverty of racial quality—a servility to the State due to weakness of character. And a yet more general survey of our own Society (and perhaps also of contemporary communities) leaves us with the same unsatisfactory feeling, and yet with a consciousness of insufficient exact data.

Most of us have an impression that we are living in an age of mediocrity; but judgments of contemporary men and events have to be made with caution and many reservations. Nevertheless, comparison of our own period with certain periods of the past does not yield obviously flattering results. If, for instance, we consider the Elizabethan age and reflect that out of a population equal to about an eighth of our own was produced a galaxy of great men including Shakspere, Ben Jonson, Marlowe, Lyly, Harvey, Bacon, Drake, Raleigh, Hawkins and a host of others each of whom would be illustrious to-day; if we regard the activities associated with those names; a splendid school of drama, a fine architectural style, an epoch-making advance in science and philosophy, and the brilliant exploits of navigators and explorers: neither the men nor the achievements of our own time appear to be such as the increased means and the augmented population might lead us to expect. Even the Victorian period, with its long roll of thinkers, writers and artists seems to offer an invidious comparison. And when we further reflect that from the gigantic social convulsion which is but now beginning to subside there emerges but a single great name—Foch; when we glance at the relatively trivial movements of the past and note such names as Washington, Napoleon, Nelson, Marlborough, Cromwell, and then turn our eyes back to the group of men who now occupy the stage of public affairs; we have somewhat the feeling of looking through the wrong end of a telescope.

Moreover, prevailing social conceptions seem to suggest a diminished clarity and precision of thought, a tendency to confused thinking and a failure to distinguish between the

essential and the subsidiary. This is well illustrated by the many discussions which have recently taken place on the subject of divorce. The divorce laws handed down to us were somewhat brutal; but they took clear account of the essentials. The prevailing modern views on the subject are humane, but they tend to overlook the essentials and to confuse the issues. Our ancestors clearly perceived that marriage is an institution primarily concerned with the status of children and security of inheritance. That whereas the adultery of the husband leaves the status of the wife's children unobscured and their inheritance undisturbed, adultery of the wife affects both the status and the inheritance of the husband's children; that the bastards of the adulterous husband are outside the family whereas the bastards of the adulterous wife are inside the family and are fraudently fathered upon the husband to the detriment of his own children. In the discussions on Divorce Law reform, these simple but fundamental facts appear generally to have been lost sight of, and attention concentrated on secondary issues. Similarly confused thought seems to prevail in respect of social welfare. Formerly this was conceived as the sum of individual welfare and the movement of progress was towards increased liberty of the individual. Nowadays encroachments on the liberty of the individual are suffered in all directions to the end that some vaguely imagined general benefit may be achieved. The welfare of the individual is freely sacrificed to the welfare of "the State" —which is merely the multiple of the individual. It is as though every soldier of a battalion had a button cut off his tunic to provide extra buttons for the battalion.

To these suggestions of confused thought and lack of solid common sense are added the impressions of poor intelligence, taste and culture that are yielded by a general survey of our surroundings: the wretched quality of the periodical literature which loads the book-stalls; the low type of most of the public entertainments, especially the rapidly increasing kinema exhibitions; the state of our furniture, household appointments, domestic buildings and masculine clothing—all of which suggest obtuseness of taste and æsthetic apathy. The aspect of our Society seems to present a drab mediocrity with a considerable element of downright degradation.

These, however, are only impressions and they may be misleading impressions. But it is useless to debate the

question. We have no adequate data. Nor is it necessary to our present purpose. We have seen that the least intelligent part of the population is the most prolific and is relatively increasing, and that the most intelligent class is the least prolific and is relatively decreasing; and those two propositions should furnish sufficient data to any person whose reasoning faculties are above those of a sub-man. Whatever the present quality of the population may be, there can be no doubt as to the promise of the future.

Thus, to recapitulate the salient points of the present chapter, we see that the definitely unfit form a large and increasing part of our population. That, outside this class, is a further large class of persons who are in an evolutionary sense unfit, *i.e.* they are not of a quality appropriate to the present advanced period of human history. We see that the low-type individual tends to produce undesirable conditions of life for all. That he disadvantages the fit by living partly, or wholly, on the earnings of the latter. That he generates political institutions appropriate to his own needs but unfavourable to the fit and therefore unfavourable to Society. That he tends to produce social disintegration, discord and disorder and to become the instrument of disturbers of the public peace. That, by his rapid relative increase, he threatens to overwhelm Society by sheer weight of numbers; and, by intermarriage with the fit, he tends to reduce the quality of the race below that irreducible minimum which is necessary for its continued existence. That is to say, the survival of the unfit man, his multiplication and admixture with the fit, entail the menace—not indirect or remote—of social collapse and racial extinction.

CHAPTER XII

THE SOCIAL ANTI-BODIES

At the end of Chapter IV. we adjourned our argument in order that we might examine certain further data, and we left in suspense, until such further data should have been examined, a question of primary importance which had arisen in the course of our enquiry. We have now ex-

amined those further data; but before taking up the thread of our argument, it may be advantageous briefly to restate the problem.

In Chapter IV. we noted that dense aggregations of certain low organisms are capable of existing for a limited, and comparatively short, time only, and that the life of the aggregation is brought to an end by the transformation of an originally favourable environment into one so completely unfavourable as to be positively destructive. We found that this transformation is due to reactions on the environment by the organisms themselves; that the reactions principally consist in the generation of certain substances —anti-bodies—which act as poisons or otherwise injuriously affect the organisms. We also found reason to believe that other, and higher, organisms, when in a state of close aggregation, react in an analogous manner upon their environment by setting up therein certain "anti-conditions," by which their increase is prevented or, in certain cases, actual extinction is effected; and the question that then arose was "whether there is any discoverable tendency on the part of human societies to produce by their reactions on their environment any 'anti-conditions' which may be expected to become operative in the future."

That question we are now in a position to answer. For the data which we have considered in the intervening chapters make it clear that man reacts very energetically upon his environment and that the general tendency of these reactions is to transform its originally favourable character into an unfavourable one. Such reactions constitute anti-conditions analogous in their effects to the anti-bodies of the lower organisms.

Of these anti-conditions or factors of this unfavourable change, we may note four, each of which appears separately capable of destroying Society and all of which are acting together. These four anti-conditions are:

1. The Domination of Man by Mechanism.
2. Collectivism.
3. The Progressive Increase of the Population.
4. The Survival and Relative Increase of the Unfit.

Let us consider these anti-conditions in the order given.

1. Mechanism. Before proceeding to the consideration in detail of Mechanism (*i.e.* Power Mechanism) regarded as a "Social Anti-body" it will be necessary to dispose of an

objection that will inevitably be advanced by the thoughtful reader; which is that there is an apparent lack of parallelism between Mechanism and those anti-bodies by which the life of aggregations of the lower organisms is extinguished; that, whereas the latter are normal and invariable products of the life of the organism, the former is a phenomenon of quite recent appearance. It will be pointed out that a single Torula, dropped into a vat of wort immediately begins to generate alcohol, the effect of which on the organism is inappreciable only by reason of its extreme dilution, but which becomes progressively effective as accumulation takes place; whereas power mechanism is a phenomenon which has been entirely non-existent during the greater part of the life of the human race.

The validity of this objection, however, tends to disappear on closer inspection. For, in the first place, although power mechanism is a new phenomenon it is, nevertheless, but a late phase of a progressive series. Its real genesis is prehistoric, and coincides in time with the production of fire and the invention of mechanism. The fire-drill, the bow, the boomerang and other simple mechanisms were its ancestors and represented the earliest stages of a series of changes which is still in progress.

But further, the position of mechanism as an anti-body must be judged in its association with other anti-social phenomena; as a factor of compound causation.

Among writers on medicine it has been customary to consider the causation of disease as resolvable into three stages: (1) Predisposing causes, (2) Exciting causes and (3) Determining causes. Briefly defining these, we may say that, in respect of any particular disease, a Predisposing cause renders that disease possible, an Exciting cause renders it probable, a Determining cause renders it certain. To take an illustrative instance: the establishment of two villages on the banks of a small, non-tidal river from which both derived their water supply, would, in the case of the down-stream village, constitute a Predisposing cause of enteric fever, since that village would be liable to contamination and infection of its water supply by the up-stream village. The occurrence of enteric in the up-stream village, with consequent contamination of the water, would form an exciting cause of enteric to the down-stream village, which, however, would not become actually effective until the Determining cause—the drinking of infected water by

susceptible inhabitants of the village—completed the train of causation and started the disease.

A like analysis of causation is possible in the case of social phenomena. If, for instance, we consider the causation of the aeroplane, we perceive that it is resolvable into a similar series of stages. The Predisposing cause was the desire to fly—which we have seen to be universal from the earliest times*—coupled with the known mechanical possibility of flight as demonstrated by birds, bats and insects. The Exciting cause is found in the innumerable attempts to fly—unsuccessful by reason of the lack of means; all the appliances being defective in respect of the necessary ratio of power to weight. These causes continued to operate with increasing (potential) effect, but consummation awaited the arrival of the Determining cause. At length there appeared the Internal Combustion Engine, presenting the necessary relation of power to weight; and straightway the flying machine—the dream of millenniums of inventors—became a reality.

In a similar manner the causation of those factors of unfavourable change, which for convenience we will continue to speak of as the Social Anti-bodies, may be resolved into a series of causative phenomena the full effects of which have become manifest only with the completion of the series. In the case of human societies there is, as I have said, an appearance of their having been completely immune until the eighteenth century and of the anti-conditions having sprung suddenly into existence. But this appearance is misleading. They have always existed. Their origin is beyond the ken of history; possibly even beyond the human period. But they remained largely potential, accumulating slowly and without visible effect, awaiting the Determining cause which was to set them in active operation. Such a cause appeared at the middle of the eighteenth century and exploded the mine.

Let us now endeavour to trace this chain of causation from the remote past to the present; and first let us note exactly the nature of the phenomenon which we are examining. This we may regard as a group of causes of which the general effect is a series of reactions on the environment of Man of such a nature as to transform it from a favourable to an unfavourable environment. The four "Anti-bodies" which I have named are, therefore, not to be regarded as

* P. 99, *ante*.

separate and independent causes of this change, but rather as the factors of a compound cause, and as appertaining to different stages of a single train of causation.

Moreover, we have to note that, in the case of a Society, the aggregate of men itself forms a part of the environment —of what I have called in Chapter VI. "the Secondary Environment"; that is to say that to every individual member of a society the rest of the aggregate forms a portion of his environment. Whence it follows that intrinsic changes in the character of a race are, in respect of every member of that race, environmental changes, apart from any reactions on the rest of the environment. In other words, that intrinsic changes of racial character affect the environment of each individual directly and indirectly; directly inasmuch as every individual is a part of the environment of every other individual; indirectly inasmuch as such racial change tends to react upon the common environment of the aggregate.

The human race, in its early period, like every other race of organisms, was subject to a process whereby its adjustment to its environment was automatically maintained and even gradually increased. This process consisted in the elimination, whenever they appeared, of such variations from the racial type as would, had they survived and engendered a posterity, have diminished the adjustment of the race to its environment; together with a tendency for variations presenting increased adaptation to the environment not only to survive, but to dominate all less-adapted forms and thus to establish a favourable variation of the race. This cancellation of unfavourable variations was essential, not merely to the advance of the race, but to its continued existence. For, on the one hand, the survival of imperfectly adjusted forms would, through intermarriage with the others, have progressively lowered the adjustment of the whole race; and on the other hand, the environment itself was subject to changes, which had to be met by fresh adjustments.

But, indispensable as was this prompt elimination of the unfit, it was not effected without the infliction of untold suffering. It involved a desperate lifelong struggle of the weak against the strong, of the foolish against the cunning, for food, for shelter, for the slenderest necessaries of life, for the companionship of a mate. Not without discomfort do we conjure up the picture of that prehistoric failure; the

poor, famished weakling, the despised outcast of the tribe, creeping, naked and shivering, to the cavern's mouth, sniffing hungrily the "sweet savour" of the roasting flesh that the brawny hunter has impaled on a stake by the fire, and driven away into the chilly solitudes with blows and jeers.

And this very compunction with which we view the miseries of the unfit barbarian gives us the clue to the genesis of the social anti-bodies. For those miseries had to be. The suffering of the unfit was the price set inexorably by Nature on the wellbeing of the fit and the survival of the race. But its own consequences set up antagonistic conditions; for, with each successive advance of the race, that bitter price was paid more grudgingly. As sympathy and pity began to extend from the helpless child to the helpless adult; as the mere crude love of mate and offspring expanded into friendship and love of kind; a larger altruism was born and a nobler type of man came into existence. And with him came into existence the first of the "anti-bodies." Those very qualities, the development of which lifted man above the level of the beasts that perish, set up conditions antagonistic to the ultimate welfare of the race. For sympathy begets aid; pity, the ministrations that relieve suffering. When the poor weakling was no longer driven into the wilderness, but bidden kindly to the fire, fed, clothed, and perchance given a mate of his own type; then were sown the first seeds of racial decay. For the unfit man survived; and surviving, flung his grain of base metal into the crucible of racial gold.

Throughout the succeeding ages we may watch the growth of altruism, with the accompanying softening of manners. In all the nobler religions duty to God was linked with duty to man, and charity, self-sacrifice and effective sympathy elevated to a lofty place among the virtues. Very instructive as witness to this growing tendency to altruism, is the contrast of the ethical conceptions exhibited in the Old Testament with those of the New; of the stern, forbidding, often cruel, but usually equitable teachings of the old Law with the soft, gentle but frequently inequitable teachings of its successor. If we compare the dictum that "if a man will not work, neither shall he eat" with the command to "sell all that thou hast and give to the poor" we can perceive the nature of the change; the replacement of rigid justice and strict regard for the larger interests of the community by a sentimental altruism that tends to ignore

the interests of mankind as a whole and to accept the claims of a class which is prepared habitually to receive gifts without the offer of any "consideration" in the form of goods or services.

And along these lines has the advance continued. The exaltation of charity, of sympathy, of the self-suppressing virtues generally, has been the key-note of Christian ethics. The claims of misfortune and suffering have received continually increasing recognition until, from being a matter for reproach they have almost become a merit; as we see, even in the Middle Ages, when poverty—the outward sign of social failure—became adopted voluntarily as a virtue, and, as one of the "Counsels of Perfection" made the subject of vows.

The growth of these gentler sentiments constitutes an undeniable advance in the intrinsic qualities of the race. Yet there is a heavy contra account. For the exercise of the newly-developed qualities amounts to a partial suspension of that struggle for existence by which in the past the efficiency of the race had been maintained. Charity, benevolence, philanthropy, are all agencies by which, in the long run, the elimination of the unfit is hindered. But the elimination of the unfit is the indispensable and only means by which the continued adjustment of the race to its environment can be secured.

Thus, in the improvement of man by the development in him of the noble moral quality of altruism, we find the genesis of one of the social Anti-bodies—the Survival of the Unfit. That improvement was a Predisposing cause of an unfavourable reaction on the environment; the resulting preservation of the Unfit was an Exciting cause, acquiring a cumulative intensity as the centuries passed, and inferior individuals, who should have been eliminated, survived, multiplied and formed inferior classes. But the effects of the Exciting cause were mainly potential, for the inferior individuals were disseminated—the anti-bodies were still in a state of dilution. Then, at last came the Determining cause—the Power Machine—and the potential effects became actual effects. By the Power Machine the inferior units were picked out of the general aggregate by a sort of Unnatural Selection and assembled into concrete masses. And thus concentrated, the anti-bodies began to take energetic effect.

The causation of the other anti-conditions shows a similar

progressive character. The origin of Collectivism is to be sought in the remote past. The fact that union is strength was early noted, and the vital difference between the real union of voluntary co-operation and the bastard union of compulsory co-operation not always clearly perceived. In the earliest aggregations of men, co-operation for defence from neighbouring tribes was an unavoidable necessity. Whether that co-operation was voluntary or compulsory, it is useless to enquire. At a time when public opinion found expression through the medium of the stone axe, the difference would not be well marked. But it may be asumed that, in an economic sense, the primitive State was Individualist and that defensive co-operation was accepted as a necessary condition of existence. And this seems to be true of militant societies generally; for, even when public works, such as the building of the Pyramids, were carried out under some degree of compulsion, the activities represented personal service to the king and were not truly collectivist. Economically, the ancient Egyptian society was individualist.

But real Collectivism made its appearance from time to time. The Church was a strictly Collectivist Institution, though its Collectivism did not extend to economic activities. It had typical Collectivist characters. It was a body in which the "State" was the unit and the individual a negligible fraction. The welfare of the "State"—the Church as a whole—was a paramount consideration, to which the welfare of the individual must, in all cases, be sacrificed. And its government was of the type which we have seen to appertain to Collectivism. It has been said that the Church was purely democratic; but it was nothing of the kind. Its government was an oligarchy, presided over by a dictator whose admitted claims to apostolic succession and infallible judgment made his will not merely Law, but Divine Law. The rank and file had neither independent rights nor powers.

But within the Church were Collectivist bodies of a still more typical kind. In the great monastic orders we have examples of Collectivism in its most complete and advanced form, carried to its logical conclusion. All property was held by the community, and none could be possessed by individual members. The very habit of the monk was the property of the community, issued as a loan to the wearer. The tools or implements with which he worked, the material that he used, were the property of the community, as were

the products of his industry. He was guaranteed food, clothing, shelter—of the kind allotted to him—attendance in sickness and Christian burial. Other rights he had none. And the government under which he lived was an unlimited tyranny from which there was no appeal. The most unreasonable command of his superior must be obeyed without question on pain of mortal sin. Unjust treatment or unmerited punishment must be accepted without question. He had no will, no independent existence; he was a mere unit—a chattel of the community.

It is noticeable, however, that this system of compulsory co-operation was not adopted from any belief that it conduced to the welfare of the co-operating individuals. The motive of its adoption was, in fact, exactly the opposite belief. The monastic life was undertaken as a measure of mortification. It was a deliberate and conscious renunciation of present welfare for the purpose of attaining future welfare (under different conditions). The sacrifice of welfare by the renunciation of the Individualist life was the essence of the transaction. That such a system could be adopted by any body of sane men with the expectation that their present welfare could be advanced thereby, does not appear to have been imagined by any serious person until the Power Machine assembled into selected groups large numbers of economically incapable and relatively unintelligent individuals.

Thus the anti-condition of Collectivism, like that of the Survival of the Unfit, awaited the Determining Cause—Mechanism—for the completion of the train of causation and the development of its effects from the potential to the actual.

In the case of the anti-condition produced by the Increase of the Population the progress of causation has been similar, but its stages have been less clearly divided; and the principal Determining cause of its sudden activity has been the great advance in physical science and especially in biology and medicine. But here, too, Mechanism has played a part. For over-population is really a phenomenon connected with the Survival of the Unfit. In a community of completely fit persons it may be assumed that the relation between the size of the population and the means of subsistence would be watched and kept in adjustment. But, as we have seen, Mechanism has set up conditions favourable to the Survival of the Unfit and unfavourable to the Survival of the Fit.

And it is the least fit part of the population that generates this "anti-body" most energetically.

From this necessary digression we may now return to the consideration of the Power Machine as a Social Anti-body; and, as the purpose of this chapter is, not to repeat the premises of our argument but to collate the data which we have already examined, a very brief recapitulation will suffice.

In our study of the Reactions of Mechanism we noted that the latter is, in effect, an independent entity, having its own laws of growth, of evolution, of reproduction and of functional activity. That, as, in accordance with these immutable laws, it has evolved, man has adapted himself to its changing condition. There has been no adaptation of mechanism to the needs of man, but a continuous adaptation of man to the necessities of mechanism. The whole of human life has come to be conditioned by the laws of mechanism. First the machine absorbed the working class and adopted its members as attendant slaves; but at last it has absorbed Society, so that Man, himself, has become but an appendage of the machine.

The Reactions of Mechanism have been considered above as affecting man, himself, and his environment; but if we accept the view advanced in this chapter* that, to every individual, the rest of the community is a part of the environment, then we may say that the total effect of mechanism up to the present has been to transform an originally favourable environment into one increasingly unfavourable, and that these effects are now accumulating so rapidly as to threaten the existence of Society and even that of the race. Let us briefly recapitulate these effects.

On the Primary, or Original, Environment of man, the influence of mechanism has been entirely injurious. The earth has become, as a place of habitation for man, less suitable and far less pleasant; and this change is still in rapid progress. Moreover, the unreplaceable resources of Nature are being consumed with such wasteful extravagance as to threaten a not remote posterity.

On Industry and its products—an important part of the Secondary Environment—Mechanism has reacted disastrously. Industry, itself, has been transformed from a pleasurable to an unpleasurable activity; from a means of

* P. 274 *ante*.

perennial happiness, interest and contentment, to a source of weariness, discontent and revolt. The Products of Industry—with the exception of the machines themselves —have suffered a debasement unknown to any former age. They are the worst ever produced by man. And the worker has undergone a like debasement. From the dignified, skilful, creative craftsman he has been transformed into the mere "unit of production"; a poor devil who toils with straining nerves at the behest of a roaring, tireless machine and meditates revolution as he toils.

And through the slaves that it has gathered to itself and whom it drives without mercy, the Machine deals out destruction to Human Society at large. The air is vibrant with menaces and hostile mutterings. The slaves of the machine, goaded to unreasoning anger by the intolerable, inhuman dullness of their lives, strike out—not at their tormentor, but at their fellow-men. The unity, the brotherhood, the friendship and mutual help which should characterize any community of men, changes before our eyes into open enmity. We see the various sub-groups of our Society drawing apart into hostile camps, the workers planning how best they can injure and impoverish their fellow-citizens, the latter scheming for defence and retaliation. We see in our own and kindred societies the growing organizations of the manual workers frankly hostile to their own societies; and beyond them the further organization of Syndicalism professedly arming for the destruction of Civilization as a whole.

These are some of the gifts of Mechanism. But there are others. There is the new type of Government by which our Society is being piloted to National bankruptcy and failure; by which all natural co-ordination is defeated; by which the normal co-operations of individuals are hindered, and the social order and automatic adjustments, which existed before its arrival, are replaced by social, industrial and commercial chaos; by which the earnings and the savings of the industrious and thrifty are devoured and the population impoverished; by which the beneficent operation of natural social causation is replaced by the wild experiments of irresponsible dictators.

The deterioration of our political institutions is directly traceable to the growth and domination of Mechanism. It is mainly due to the appearance of the political body known as "Labour." But Labour—the organized aggregate of

machine workers—is, as we have seen,* the creation of Mechanism; and we have also seen† that, as a body, it represents the lowest average intelligence of the population. And the change in our political institutions is one appropriate to a low intelligence of the electorate. For the political conceptions of the unintelligent man are no less rudimentary than his religious conceptions. Just as the latter compel him, in order to think of natural phenomena, to visualize Nature in an anthropomorphic deity having the characters of a human mechanic; so, politically, he has to think of all social changes and activities as produced by the purposive action of the directing body. He cannot conceive social causation as a natural phenomenon. And to this rudimentary mode of thought the existing system of the conduct of society by a syndicate of dictators is completely adapted.

There is no need to recapitulate the other reactions of Mechanism; the unemployment which is inevitable as the growing automatism of the machine more and more excludes the human worker; the increasing power of the great money-spinners—the Trust Directors, the "Industrial Kings" and other allied anti-social types—as the centralization of production brings ever-widening areas of industrial activity under the control of a single hand. The reactions already described demonstrate amply the character of the agent and yield the inevitable conclusion. No thoughtful observer who considers the social phenomena connected with Mechanism can fail to perceive that they represent a state of unstable equilibrium. A society whose integral parts are mutually hostile—are seeking each the injury and destruction of the others; the bulk of whose workers lead lives so unpleasurable that they are ready to pull down the whole social fabric on their own heads; whose governing institutions are of a kind that hinders the common welfare instead of advancing it: is a society which cannot possibly last. Its own activities are hurrying it along the road to annihilation. And behind those destructive activities is the motive force of the Power Machine.

Those Reactions of Mechanism, then, which are in constant operation and may be regarded as normal, mark it as a true "Social Anti-body"; the agents of a profoundly unfavourable change in the human environment. But in addition to these, there are certain further reactions to which,

* P. 151 *ante.* † P. 150 *ante.*

inasmuch as they may be regarded as abnormal, I have made but a passing reference in the body of this book, but which we must now briefly consider. These are the Reactions of Mechanism on War.

Various thoughtful observers, considering the recent gigantic conflict of nations, have sought to assign to it some particular significance. By one it has been regarded—on what grounds I cannot guess—as a conflict of Christianity with infidelity; by another as a struggle for racial supremacy; by a third, with more reason, as the final contest of militant autocracy with the institutions of democracy. Each of these views may have in it some element of truth. But if, disregarding the local and temporary characters of this tremendous struggle, we look on it from a broader sociological standpoint, we shall see its essential character to be that of a War of Mechanism on Man. In so far as it differed from all previous wars, the difference was due to Mechanism; and every new character imported into warfare by Mechanism was disadvantageous to man. No one will, I am sure, dispute the assertion that if that war had been fought by men armed only with stone axes and clubs, the bloodshed, the mortality, the suffering, the destruction, would all have been infinitely less.

The Great European War presented many characters that were new. Its magnitude was a mere outcome of that of the populations engaged. Its savagery was a consequence of the racial characteristics of one of the belligerent peoples. The German invasion of Belgium and France has its parallel in the campaigns of the ancient Semitic peoples. But in other respects the war was without precedent. In its shocking mortality; in the frightful character of the wounds inflicted; in the horrible circumstances in which it was conducted; in the essential and unavoidable inhumanity of its methods; in its gigantic costliness, and in the incredible destruction of the inherited wealth of mankind: it stands alone among all human conflicts. And all these characteristics, by virtue of which it exceeded in horror any other war, were characteristics imported by Mechanism. It was the first great machine-made war of history; and of all the wars that history has chronicled, it was the most horrible.

And it is to be noted that, in its belligerent character, Mechanism is an anti-body pure and simple. It has no

other function. It is simply destructive in general terms. As I have said, a war conducted with barbaric weapons would be equally efficient as war, and immeasurably more humane. In the late war, Mechanism stood apart as an independent entity, not in the least concerned with the issues, but, with cynical impartiality, ready to help any of the belligerents to slaughter or torture the others. It took no side. It favoured no conclusion. It merely increased the destructive efficiency of all parties. It was a Frankenstein monster whose function was to kill men and destroy their works—not to kill Frenchmen, Germans, Englishmen or Italians, but to kill men. The prowling submarine was at anyone's service. The mine was ready to blow up a ship—it mattered not what ship. The aircraft would scatter the blood of women and children indifferently in the streets of London, of Paris, of Cologne. It was no matter, so that these mortals died, and died horribly.

The development of the mechanical appliances of war has been an evil without mitigation. It has affected war in no respect but to increase its horrors. In this field of its activity, Mechanism has appeared frankly as the enemy of mankind. In civil life, the injuries that it has inflicted on humanity have been disguised as services. Its destructive effects on Society have been indirect. But in the activities of war its effects have been direct. It has thrown off all disguise. It has come out into the open, naked and unashamed, in the character of the Destroyer of Man.

I have spoken of the effects of Mechanism in war in the past tense. But it is a very recent past. And there is the future. In those four years, on which we still look back as on a bad dream, Mechanism grew apace. When the war began, the aeroplane was little more than a scientific toy, hardly beyond the experimental stage; before the war was half over, it had become a terrible engine of destruction. In 1914 the tank was undreamed of save by Mr. Wells; in 1918 it dominated the battlefield and dictated the strategy of armies. And so with the other appliances and means for killing or maiming men and destroying human wealth. In the interval between the beginning and the end of the war, they grew up like mushrooms in a summer night. And they are still growing; and they will continue to grow with ever-increasing rapidity, in accordance with that law of the growth of mechanism which we investigated in Chapter V. It is an uncomfortable thought, but we cannot

doubt that if war were to break out to-morrow, its horrors would be immensely greater than those of 1914; while, if twenty to thirty years hence, a great war should arise, the power and perfection of the mechanical appliances would be so great as to lay the civilized world in ruins and leave the scanty remnants of its population a mere horde of famished barbarians groping among the debris for the bare means of life.

Thus Mechanism, by its reactions on Man and his environment has been and is still antagonistic to human welfare. It has destroyed industry and replaced it by mere labour; it has degraded and vulgarized the works of man; it has destroyed social unity and replaced it by social disintegration, and class antagonism to an extent that directly threatens civilization; it has injuriously affected the structural type of Society by developing its organization at the expense of the individual; it has endowed the inferior man with political power which he employs to the common disadvantage by creating political institutions of a socially destructive type; and finally, by its reactions on the activities of War, it constitutes an agent for the wholesale physical destruction of man and his works and the extinction of human culture. It is thus strictly analogous to those anti-bodies by which the existence of aggregates of the lower organisms is brought to an end. Like those anti-bodies it tends to convert an originally favourable environment into one so unfavourable as to be ultimately incompatible with the continued existence of the aggregate.

There remains to be considered yet one other aspect of Mechanism, the contemplation of which will afford us some satisfaction, since it seems to reveal an opening in the cloud of pessimism which has hitherto brooded over our subject. The acute reader, in the course of our study of the Reactions of Mechanism, has probably noted that those reactions are not unconditional; that the "anti" character is not inherent in Mechanism but is the product of a compound causation of which Mechanism is only one factor. That Mechanism is not an absolute but a relative "anti-body" whose character as such is conditional. Hitherto the necessary conditions have been maintained; but they are not unalterable.

In Chapter V. it was pointed out that Mechanism is a concrete expression of knowledge; that any given mechanism is the experimental demonstration of an ascertained truth.

But knowledge is power; and mechanical knowledge is a very readily-applicable form of power—the power to control the environment. The possession of this power is manifestly not an anti-condition. It is inherently favourable to the possessor. Thus Mechanism, so far from being an "anti-body"—a factor of social and racial destruction, is apparently, so far as its inherent qualities are concerned, a factor of favourable change—a means of human advancement and increased welfare.

There thus appears to be a radical discrepancy between the inherent qualities of Mechanism and its observed effects. What is the explanation of that discrepancy? It is very simple. The power conferred by mechanical knowledge is that of controlling the environment. But, just as the man of low intelligence, on acquiring political power has used that power to diminish the suitability of social conditions even to himself; so man, on acquiring the power to control his environment, has used that power to alter it to his own disadvantage. That power came to him too soon; before he had become competent to exercise it. The extrinsic changes in his condition had overrun the intrinsic changes. The accumulation of knowledge had not been accompanied by a proportionate increase in intelligence.

The effects of the use of any means or the exercise of any power are very evidently determined by the degree of intelligence with which the means or power is used. A woodman's axe is an undeniably useful appliance; but it does not develop its excellent qualities in the hands of a baboon. And this is the analogy that many of the uses of mechanism suggest. The men, who in the newly-invented airship, saw only the means of destroying towns; in the great chemical factories, the means of poisoning their neighbours; who in France and Belgium employed the final triumphs of mechanism to sweep away, amidst horrible bloodshed, the accumulations of human wealth which centuries of industry and genius had created: suggest to our minds the picture of a large monkey who has got possession of a smith's hammer and made his way into a gallery of priceless porcelain.

But although the application of mechanism to the wholesale destruction of human life and human works is of all its misapplications the stupidest, it does not stand alone. It is not even exceptional. The truth is that the whole history of the development and application of the Power Machine

is one long record of perverse stupidity. This wonderful gift of knowledge and of human ingenuity, which might have done so much to ameliorate the conditions of life; this giant, whose strength and speed have no limits, who knows no fatigue, who was ready to take over without complaint all the worst drudgery—all the dull, monotonous, arduous, dirty, disagreeable work that had to be done, but, as work, was not worth doing—leaving to man an amplified leisure in which he could have pursued his proper activities in the enlargement of knowledge, the cultivation of art and the building up of a glorified industry; how have its services been utilized ? Is drudgery extinct ? Is leisure abundant ? Is art triumphant ? Is industry glorified ? Let us look around us and see.

Our observation will show us great machines turning out by the thousand works of fine and applied art (or travesties of them)—pictures, jewellery, carvings, metal-work, book-bindings, pottery, furniture, textiles; all kinds of commodities the creation of which by hand-work would be a joy to the worker and which lose their essential virtue and quality by mechanical production. The work which is worth doing and which can be done satisfactorily only by the skilled human hand, has been taken over bodily by the machine. And meanwhile men still trundle barrows and haul trucks, stagger under bales of wool and dripping fish-trunks, shovel muck and handle refuse; still the coal-miner crouches in the working, into which he has crawled on his belly, and claws the coal from the face; still the housewife fritters away a lifetime in the dullest of manual labour.

But not only has the machine not lifted the load of drudgery from man's shoulders. It has done infinitely worse; for it has multiplied that drudgery a hundredfold. To those labours which had survived into the machine age from the remote past, it has added the immeasurably duller, more tedious and more exhausting labour of attending on its own activities. And this labour is not the portion of a few only; drudgery—soul-destroying, wearisome, exhausting drudgery—is the lot of the greater part of the working class. The craftsman grows as rare as the Great Auk; but the labourer remains and relatively multiplies.

The immediate cause of the "anti" character of Mechanism is thus the inversion of its proper relation to man. It should have been his servant; it has been allowed to become

first his competitor, then his master. The machine should have been the drudge of man; in actual fact, man has become the drudge of the machine. Developing mechanism should have been adapted to the needs of man, or rejected when unadaptable; in fact it has been accepted as a whole and human life adapted to its special characteristics. The Social Anti-body is not Mechanism itself but the domination by it of human life and human activities. But this domination was made possible by the existence of large numbers of persons of inferior intelligence and by general inadequacy of intellect and imagination, as shown by the failure either to make use of its powers or to perceive the danger of their misapplication. Whence it seems to follow that the essential part of this compound "anti-body" is the insufficiently developed mental condition of the bulk of mankind. For whereas Mechanism is conditionally either beneficial or injurious to human welfare, defective intelligence is unconditionally injurious.

The final conclusion which emerges from our enquiry is that Mechanism is a power whose effects upon human welfare are favourable or unfavourable according to the wisdom or folly with which it is employed. In the past and the present its use has been, and is, characterized mainly by folly; and its effects have been, and are, mainly unfavourable to human welfare. At the end of the vista of the unfavourable reactions of Mechanism we see the inferior human being; at once the ultimate cause of its "anti" character and the principal medium through which its maleficent effects have been, and are being, manifested.

2. To the second of the "Social Anti-bodies," Collectivism, we need devote but a brief consideration here, inasmuch as we have already, in Chapter X., sufficiently examined its phenomena and noted its effects. We may observe, however, that, unlike Mechanism, the "anti" character of which is conditional, it is inherently and unalterably unfavourable to human welfare. It is an absolute anti-body, whose reactions upon the human environment are inevitably unfavourable.

Our examination of Collectivism showed it to be a system of social co-ordination of which the principal peculiarity is that it enables the unfit to become completely parasitic upon the fit. The achievement of this result is, presumably, not the purpose which the promoters of Collectivism have in

view; but the parasitism of the unfit on the fit is the inevitable consequence which is evolved by the Collectivist principle. The further consequences are obvious and have already been traced. When, of two similar organisms, one becomes parasitic on the other, the chances of survival are manifestly in favour of the parasite. For the latter obtains its subsistence with a minimum of effort, while the former—having to maintain itself and the parasite as well—obtains its subsistence with a maximum of effort. Under Collectivism, therefore, the chances of survival are in favour of the unfit, *i.e.* the tendency is for the unfit to survive at the expense of the fit. The final result, if it were possible, would be the complete elimination of the fit and the complete survival of the unfit. But this is not possible; for the unfit can exist only by subsisting parasitically on the fit. The actual result would, therefore, be the ultimate extinction of the race, preceded by a progressive deterioration due to the increasing proportion of the unfit.

Collectivism is thus a true "Social Anti-body." Its reactions on the human environment (including aggregations of men) are of such a nature as to render that environment completely unfavourable and to compass the extinction of the race. It is, moreover, an anti-body which is beginning to react with great and increasing energy on the environment of our own society, and the effects of which are daily becoming more and more manifest. And here, as in the case of Mechanism, the ultimate factor of evil is the man of low intelligence. It is he who has made Collectivism possible; it is he who clamours for its further development; it is he who finds it adjusted to his needs; it is he who, when it is fully established, will enable it to accomplish its mission of racial degradation and annihilation.

3. The third of the "Social Anti-bodies," the Progressive Increase of the Population, has received more attention than the others. The "anti" character of the phenomenon was noted by Malthus and by various other thinkers. Indeed, the facts are obvious enough. The population is an increasing quantity, the earth on which it lives is a fixed quantity. Clearly there must come a time when the habitable world will be full—when the limit of the possible further increase of men will be reached. But although this truth has necessarily been perceived by everyone who has given the matter a thought, there has been a tendency to

treat it as a subject of merely academic interest; to consider the approach to the limits of the means of subsistence as a contingency appertaining to a remote and negligible future. But if we take note of the increase of our own population and reflect that other populations are similarly increasing; and if we further consider the disproportionate consumption of the resources of Nature which is occurring concurrently with that increase; we shall realize that the operation of this "anti-body" appertains, not to a remote, but to a very near future—indeed, that it is already operating. Let us look at a few figures.

First, as to the increase of population itself. In 1690 the population of England—without Wales—was about five and half millions.* In 1801—after the lapse of more than a century—the population of England and Wales together was only 8,892,536. It had not nearly doubled. But in 1851 it had risen to 17,927,609. It had more than doubled in fifty years. In 1901 the population of England and Wales was 32,527,843. In this second fifty years it had nearly doubled again. By 1911 it had risen to 36,070,492. Assuming the increase to continue at the present rate, the population of England and Wales will be in 1951—about thirty years hence and so well within the lifetime of adult men now living—about 65,000,000. By 2001—about eighty years hence and thus within the lifetime of many children now living—it will be about 130,000,000.

Looking forward, then, only thirty years, we see England and Wales with a population of about sixty-five millions. And this is a conservative estimate. For the slow increase in the past was due, not to a low birth-rate but to high infant mortality and to the frequent occurrence of great epidemics. But both these conditions are being rapidly eliminated. The reasonable expectation is that the increase of the population will become accelerated. But even if we accept the estimate of sixty-five millions, we are faced by a situation of serious difficulty. It is evident that such an increased density of population will create very unpleasant conditions of life and greatly decrease comfort and convenience. For already we are sensible of an excess of the population over the accommodation. The internal transport of London fails to keep pace with the requirements and the general transport of the country appears to be inadequate.

* Macaulay, based on Gregory King and other contemporary observers.

Since the war, the supply of the necessaries of life—food, clothing, houses—has been insufficient. It is true that of these deficiencies, the last entirely and the other two very largely, have been due to the replacement of normal and efficient agencies by inefficient Government departments. But there is nothing to show that this failure of social co-ordination is not a permanent condition. In any case it is quite evident that the population of this country is rapidly approaching the limits of the means of subsistence within its own habitat. Of this the general strenuousness of life, the "high pressure," the increasing difficulty of obtaining a livelihood and the normally prevalent unemployment are clear evidence. The unemployed man is a man who is seeking a subsistence and not finding it. He has reached the limits of the means of subsistence. And those who obtain a living with difficulty are obviously very near those limits.

By those optimists who favour the tactics of the ostrich, the difficulty will be dismissed with the suggestion that when England is full, its excess population can emigrate. But this solution of the problem of over-population by the export of men is pervaded by the same fallacy as the solution of the problem of over-production by export of goods. It assumes that the problem does not exist for the rest of the world; that outside our land is a permanent receptive area of unlimited capacity. The fact, of course, is that other populations are similarly increasing and that available (and eligible) areas are being rapidly filled. And even where practicable, emigration is but an unsatisfactory solution.

But associated with the increase of population is another extremely menacing phenomenon—the disproportionate increase in the consumption of the world's resources. The consumption of material does not increase in the same ratio as the population. There is a progressive increase of consumption per head. The gigantic output of the Power Machine constantly increases the production of commodities regardless of the actual demand. The pernicious theory of the machine producer is that "supply creates demand," which is mainly untrue. Supply creates sale but sale is no evidence of demand. In the Spring we may find bundles of wild hyacinths lying on paths near the woods. They have been gathered and then thrown away. It may be said that there was a demand for hyacinths, or they would not have been gathered. But if the demand had been real they

would have been taken away. There was no demand. They were taken because they were there—from mere acquisitiveness. So it is with the cheap commodities of machine production. If cheap enough they will be bought —not because they are wanted but because they are cheap.

The huge output of modern industry is associated with a lack of durability of the products, involving frequent replacement. A good instance of the difference in this respect between ancient and modern work is furnished by a comparison of the roof of Charing Cross Station, which collapsed about 1901, with the roof of Westminster Hall. The former was put up about 1860 and thus fell after a life of about forty years. The roof of Westminster Hall was constructed in 1397 and is still standing; having thus lasted considerably more than ten times as long as the other, with a corresponding economy, not only of material, but also of time and labour, to say nothing of its æsthetic superiority from the first.

Moreover, modern industry tends not only to consume vast quantities of material; it tends to consume capital material—material which cannot be replaced. The two roofs illustrate this point also. That of Charing Cross was of iron—dug out of the earth, "molten out of the stone" and expended once and for ever. That of Westminster Hall was of oak; and since it has lasted over five hundred years, the trees of which it was built may have been easily replaced during the lifetime of the structure.

But even in the case of nominally replaceable material, the consumption is on a scale that precludes the possibility of replacement. Take the case of wood. Under the present conditions—centralized machine production with distribution to distant consuming areas—there is an immense increase in the wasteful use of this material for mere packing purposes. Then there is the production of paper from wood pulp. This does not strike the superficial observer as accounting for a great increase in the consumption of timber. But let us look at the facts.

The great Hoe double octuple rotary press, on which large newspapers are printed, is fitted with eight reels of paper which all unwind simultaneously. Each reel contains five miles of paper, weighing fourteen hundredweight or more; and a reel is unwound in half an hour. Thus, in half an hour the machine consumes forty miles of paper, weighing approximately six tons. But the manufacture of one ton

of news-sheet consumes ten trees. Hence, in half an hour this machine consumes sixty trees. And this is only a fraction of one day's issue of a single newspaper. If we estimate the quantity of paper consumed by a great "daily" in a single day's issue, at a hundred tons, we shall be well within the mark. But this involves the destruction of a thousand trees. The number of newspapers now appearing throughout the world is estimated at over sixty thousand (of which more than half are in the English language), so that the daily consumption of timber by newspapers will be equal to that required to build a good sized town. The quantity consumed by a single day's issue of one great newspaper will probably be greater than that consumed in roofing Westminster Hall. But whereas the latter has yielded five centuries of service and still remains, the newspaper—the ridiculous mouse of this mountainous parturition—is rubbish, and probably ashes, in a few hours. And the newspaper represents only a part—though a considerable part—of the timber daily consumed as paper. There is a further enormous consumption in the form of books, bills, posters, circulars, letters, wrapping papers and a host of other forms.

Gigantic, however, as is this consumption of material, it is small compared with that of the near future. For the population is increasing by a geometrical progression and the consumption of material increases more rapidly than the population. Each new mechanical development increases the speed of production with a corresponding increase in the consumption of material. The imagination shrinks from the attempt to estimate the mass of material that will be consumed by the great populations of fifty years hence—if there is anything left for them to consume. And that is the problem. The present population is behaving towards its environment like a party of tramps in a tenement house, who tear down doors, balusters and staircases to use as a fuel, and depart leaving the house a mere shell. So the population of to-day is gutting the world, mostly in sheer waste; tearing the mineral wealth from the bowels of the earth and stripping the vegetation from its surface; and this, not to create permanent works, but to fling away with wild and reckless prodigality on the production of fugitive trash, a large proportion of which need never have been made at all.

The menace of over-population, therefore, is not held out

to a remote and shadowy future, but it is a reality which is already with us. And its most threatening aspect—the exhaustion of natural sources—is the result of the thriftlessness, the improvidence, of the present generation; of the generally prevailing mental inadequacy. But, indeed, the anti-condition as a whole is the product of general mental undevelopment; for the race which multiplies blindly up to the limits of the means of subsistence is a race of fools. And we know that in our own society the least intelligent classes multiply the most rapidly.

Thus the essential factor of this "anti-body," like that of the two preceding, is the man of insufficient intelligence.

4. With the fourth of the "Social Anti-bodies"—the Survival and Relative Increase of the Unfit—we have dealt so fully in the preceding chapter that little need be said here. From our examination of the phenomenon itself its "anti" character clearly emerged. Having noted that not only the advance of the race, but its bare maintenance, is conditional on the continuous elimination of the unfit; and having further noted that such elimination no longer takes place; we have the two premises which yield the conclusion that our race is not maintaining itself even in a stationary condition. The survival of the unfit can occur only by means of their parasitism on the fit. But the occurrence of this condition at once inverts the relative position, as to chances of survival, of the fit and the unfit. Normally, the fit tend to survive because they receive the benefit of their superior efficiency. But if that benefit is transferred to the unfit, the latter acquire the greater tendency to survive.

The appearance of our society leaves us in little doubt that these effects are actually being produced. The recent remodelling of our political institutions into a form which enables the unfit to become conveniently parasitic on the fit, suggests that the former have already become so large a class as principally to occupy the attention of politicians; and a similar conclusion is yielded by the fact, already noted, that the bulk of our collective activities are concerned with arrangements for the maintenance of the unfit.

And here it has to be observed that when we speak "of the unfit" we do not necessarily refer to the absolutely but only to the relatively unfit. In a sociological sense, the man who does not completely maintain himself is unfit, since

a society composed of such men would be impossible. The man who claims to receive commodities or services either free or below cost price (the balance being paid by his fellow-citizens); who demands that he be provided with a house partly rent free, with tram or train service at less than cost, with free medical treatment, with free education for his children, with subsidized food; who, in short, demands that his fellow-citizens shall pay out of their earnings or savings for a substantial part of his maintenance: such a man is, in a sociological sense, unfit. He is not the stuff out of which a stable society could be built.

But even the less grossly unfit man is still unfit to-day. For this is the twentieth century. The accumulation of knowledge has endowed contemporary man with powers such as no former generation wielded. Medicine, physics, chemistry, mechanism—all these are instruments of stupendous power by which man can control the conditions both of himself and his environment. But the possession of this new power constitutes in itself a profound change in his environment to which he needs to be adjusted. And the nature of the necessary adjustment is obvious. The growth of power requires to be met by a corresponding growth of intelligence. But no such adjustment has taken or is taking place. Rather there appears to be a falling off of intelligence, with a corresponding misuse of these great powers, so that biological knowledge is made to assist the survival of the unfit, mechanical knowledge to secure the deterioration of the environment.

Like the other Anti-bodies, Survival and Increase of the Unfit is setting up conditions that cannot last. The actual relative increase of the unfit on the one hand and the progressive loss of quality in the fit from intermarriage on the other, are conditions that must inevitably reduce the general quality of the race below the minimum that is necessary for its survival. Continued survival of the unfit inevitably entails the ultimate extinction of the race.

We have now completed our examination of those factors of unfavourable social change which we have called the Social Anti-bodies. In the preceding chapters we considered them in terms of their phenomena and their reactions on the different parts of the Human Environment. In the present chapter we have considered them in terms of their essential nature. And as the toxicologist's analysis of

suspected material gradually eliminates the inert and subsidiary bodies until it isolates the actual poison, so our analysis has shown that the four great Social Anti-bodies are but different modes and manifestations of a single destructive influence—the suspension of Natural Selection; the Survival of the Unfit.

On p. 255 it was asserted that "wherever there is found some condition by which the happiness and well-being of mankind are reduced, investigation will, in nearly all cases, reveal the existence of the inferior man as the ultimate cause." And so it has proved to be. Of the unfit man it may be said, parodying the words of Johnson's epitaph on Goldsmith, "Nihil quod tetigit non degradavit." At his touch the beautiful and gracious things of life, the treasure of mankind, have turned to dust and ashes; the gifts of knowledge into social poisons, unity and mutual help into fratricidal warfare, sympathy and charity into the factors of racial decay.

And day by day his upas shadow is cast more widely and with deepening gloom on the face of civilization.

Apart from the possibility of some measures of regeneration, the future has for us but a speculative interest. The continued operation of the destructive influences which our analysis has exposed appears to involve the collapse of Western Civilization, sooner or later according to the rapidity of racial deterioration and the frequency and intensity of internal and inter-racial warfare. When the existing order has been resolved into chaos, what, we may ask ourselves, will follow? Of the Caucasian Race, virtually the whole will be involved in the catastrophe. India seems to offer no competent successor. Of the two great Mongol Races, one has already succumbed. The brilliant, adaptable Japanese have drunk of the Circean cup and are undergoing the appropriate transformation. May it be that presently the venerable civilization of China will awaken from its long resting-stage to tread again the path of Progress?

It would not be without a certain fitness. For it was a Mongol Race that, from the plains of Sumer and Accad, looked upon the dawn of civilization. Perchance a Mongol Race shall yet witness its noontide glory. But it is idle to speculate. Nor is it to us of any consequence who shall inherit the earth when we are gone. Better will it be for us

to gird up our loins for a final effort to achieve our salvation; and meanwhile with clear vision to watch the gathering clouds; to discern the shadowy hand even now growing palpable from the thin air; the damnatory finger tracing upon the wall its "MENE, MENE TEKEL UPHARSIN," warning us that we and our civilization have been tried in the balance and found wanting.

PART TWO
SYNTHETIC

CHAPTER XIII

THE MEANS OF SOCIAL REGENERATION

THE enquiry on which we embarked in Chapter IV. and which we have just concluded, has shown us that human societies present no periodic phenomena analogous to the life-cycle of the higher compound organisms; no infancy, adolescence or senility ending in inevitable death. These are phenomena appertaining to the somatic portion (which I have called the "investing structure") of the higher organisms. But we have seen that the Social Organism has no investing structure. It is a simple aggregate of organic units, devoid of parts, organs, and even of a definite boundary; and like other organic aggregates of a similar simplicity, has a life of (potentially) indefinite duration.

But other simple aggregates, as we have seen in Chapter IV., although potentially immortal, have, in effect, an existence of only limited duration; and that existence is brought to an end, not by any normal periodic phenomena like those of the higher compound organisms, but by the accumulation in their environment of certain by-products of their collective vital processes, which accumulation transforms that environment from a favourable to an unfavourable one. In other words, they react on their environment unfavourably, and the effects of those reactions are cumulative in proportion to the density of aggregation.

We have seen that human societies resemble other simple aggregates in this respect. Certain by-products of their collective vital processes tend to react unfavourably on the environment; and since these by-products tend to accumulate, the reactions tend to become cumulative with a rapidity proportionate to the density of aggregation.

There thus appears to be complete analogy between a human society and other simple aggregates of organisms. But if the analogy is complete, the existence of a human society should necessarily be brought to an end within a limited period by the cumulative effects of its reactions

on its environment. The very important question therefore arises, whether the analogy is really complete or whether it is subject to any exceptions.

That question our study of the social organism in Chapter III. enables us to answer. The analogy is not complete. There is an important exception. For whereas the lowest compound forms are relatively simple aggregates of simple units and the higher compound organisms are complex aggregates of simple units, the Social Organism is a simple aggregate of complex units. In this complexity of its units it is unique. Its units are, out of all comparison, the most highly developed of all organisms. And this unique character of its units endows the Social Organism with a conditional immunity from the fate of all other simple aggregates. The units of all other simple aggregates inevitably generate the factors of their own destruction and inevitably succumb. But the units of the Social Organism have a fully-developed consciousness and even a self-conscious intelligence. They can perceive the changes in themselves and in their environment and can reason about the relations of the one to the other. And they can consciously and purposively control those changes in such a manner as to inhibit the unfavourable reactions on their environment and indefinitely postpone the destruction of their aggregate.

But the immunity is only conditional. If the men who form the units of a society do actually perceive and take note of changes in themselves and their environment and reason about them; and if they exercise an intelligent control of those changes, so as to inhibit the unfavourable reactions on their environment; then their society is immune so long as those conditions are maintained. But if, on the other hand, they allow the changes in themselves and their environment to pass unnoticed, and permit the unfavourable reactions on their environment to continue with cumulative intensity: then is their society like any other simple aggregate of organisms; it generates the factors of its own destruction and it must inevitably be destroyed.

And such is the condition of our own society. As our analysis has shown, it is reacting on its environment in various directions with great and increasing energy and with cumulatively unfavourable effect. And the daily-increasing density of aggregation proportionately accelerates the unfavourable changes.

There is a close analogy between the sciences of Medicine and Sociology. Each is a composite body of knowledge formed with a definite utilitarian end—to serve as the rational basis for certain activities. The purpose of the activities based upon the former is the material welfare of the individual body; that of the activities based upon the latter is the welfare of the social aggregate and its component units. Both bodies of knowledge have the common character that their subject matter is grouped around the utilitarian purpose of the conjoined activity; and both activities have the common character that, while based upon exact knowledge, they are capable of being usefully pursued beyond its limits. The practice of vaccination was usefully carried out more than a century before the knowledge of the nature of immunity, which furnished its rational explanation, became available. And so in the domain of Sociology; where exact knowledge is deficient, useful action may be based upon the cautious and well-considered application of established empirical data.

In dealing with a specific case, the physician is concerned with the patient's symptoms principally as furnishing a clue to causation. The object of his research is the discovery of the morbid condition of which the symptoms are manifestations; and the object of his activities is the cure of the ultimate morbid condition, which cure will necessarily include that of the symptoms. So the sociologist is principally concerned with unfavourable social conditions in so far as they furnish clues to causation. His researches have as their purpose the discovery of the under-lying causes of those unfavourable conditions; and the activities suggested by his conclusions have as their purpose the removal of those causes, whereby the unfavourable effects will necessarily be removed.

Our investigations have shown that the unfavourable changes in the environment of man are the products of four anti-conditions: the Domination of Human Life by Mechanism; the Rise of Collectivism; the Rapid Increase of the Population; and the Survival of the Unfit. But further investigation has shown that, of these four anti-conditions, the first three are really symptoms or manifestations of the last. That the ultimate anti-condition, which includes the other three, is the Suspension of Natural Selection with the resulting survival and relative increase of individuals unadjusted to the environment.

The isolation of the ultimate morbid condition completes the diagnosis and at once suggests the appropriate remedy. If the threatened dissolution of Society is due to the Suspension of Natural Selection, then the re-establishment of Natural Selection would appear to be the measure obviously indicated. If the danger to the social aggregate arises from degenerative changes in the population due to the Survival of the Unfit, then racial regeneration by the Elimination of the Unfit would appear to be the means of averting that danger. With the proximate social evils which are the effects of this ultimate cause we need not concern ourselves. The function of constructive sociology, like that of medicine, is not merely to alleviate symptomatic troubles but to cure the disease.

The general nature and aim of the necessary activity having been thus determined, the next stage is the formation of a practicable scheme of procedure. It is evident that the re-establishment of Natural Selection in its primitive form is impossible. The inhumanity involved would never be tolerated by modern men. Nor could the most impassive sociologist seriously contemplate the sacrifice of such transcendently precious virtues as sympathy, charity, benevolence and love of kind as a means of racial improvement. Clearly, the result must be achieved by some method acceptable to man in his present condition of mental and moral development. Natural Selection must be, at least to a large extent, replaced by artificial selection.

The methods of artificial selection hitherto proposed by eugenists fall into two groups: (1) What we may call Constructive methods, the aim of which is to evolve a superior type of individual, and (2) what we may call Eliminative methods, the aim of which is to raise the average quality of the race by eliminating inferior types of individual.

1. The Constructive methods are similar to those of the stock-breeder. They propose, by the mating of suitable men and women, to produce offspring having certain desirable qualities. The aim is towards the production of a race of super-men. But the application of this method presupposes the existence of two indispensable conditions: (*a*) Knowledge of the qualities which are desirable in the members of a population and the possession of which would constitute an improvement in the race; (*b*) The existence of some individual or body which, possessing the above know-

ledge, would have the power to arrange and control marriages so that suitable individuals should be mated. In the case of the stock-breeder these conditions exist. The type of animal required is known; for the breeder is not aiming at the improvement of the race in a biological sense, but merely at the production of certain specific qualities, which may be biologically bad qualities. The prize ox, the milch cow, the thorough-bred racer, are forms which, in a state of nature, would probably be unfit; but their qualities are useful to man and are accordingly sought by the breeder. His problem is a comparatively simple one; and he has complete control over the reproductive activities of his pedigree animals.

But in the case of man neither of these conditions exists. The qualities the possession of which would constitute a superior population are unknown. They may be guessed at; but guesses are not knowledge. Robust proposals to "breed" for genius, for energy, for intellect or for this or that apparently desirable quality are radically unsound. Men possessing these qualities are often valuable individually; but there is no evidence that a population entirely composed of them would be a desirable population. And even if the knowledge were available, the power to apply it is not. The idea of the compulsory mating of human beings is merely fantastic; and it may be added that any individuals who would permit themselves to be "bred" like pedigree bulls would not be worth breeding. The lack of character shown by their submission would be evidence of unfitness.

2. The Constructive method is therefore impracticable and we must perforce fall back on the eliminative. Here we are on much firmer ground; for, if we are ignorant of the qualities which would go to the making of a superlatively fit individual, we have ample knowledge of the qualities of the unfit; and we know that if all the manifestly unfit members of the population could be eliminated, the residue would present a markedly higher average of quality. Moreover this method rests upon a sure experimental basis, for it is Nature's own method. By the continuous elimination of the unfit a sub-human race rose to the human level and the primitive human barbarian progressed to civilization. Furthermore it is the method which rationally follows from our conclusion; which showed the ultimate cause of the unfavourable change in our environment to be the Survival and Progressive Increase of the Unfit.

Here, then, we have a method of known efficiency and obviously appropriate to the condition to be dealt with. The next step is to discover a means of applying it. The suggestions hitherto advanced indicate three modes of procedure: (1) Segregation of the Unfit; (2) Restrictions on the Marriage of the Unfit; (3) Sterilization of the Unfit. Let us examine these three modes of procedure as to their respective efficiencies.

1. The Segregation of the Unfit is a measure which has already been put into operation to a limited extent by the State with possibly beneficial results. Its application is, however, at present restricted to a quite small group of the Unfit—the insane and mentally deficient—and it does not admit of being applied much more widely. The segregation of the whole of even the abnormal unfit would lay so great a burden on the community as to constitute a hindrance to the rearing of families by the fit (who would have to bear the entire cost) and thus defeat the object of the proceeding. But even if all the abnormal unfit were segregated, the effect on the quality of the population would be insignificant. For there would remain the normal unfit, to whom this method is not applicable. But it is the normal unfit who constitute the principal *materies morbi*. Their vast numbers, which render segregation impossible even if it were admissible, form the chief menace to the stability of our society. When it is borne in mind that this group includes, not merely the relatively small submerged class; the great class of the economically incapable with whose complete or partial maintenance (at the expense of the fit) most of our State activities are concerned; the huge mass of men of low intelligence whose existence is disclosed by the anti-social activities of organized labour and by the various imbecile revolutionary propaganda; but that, for our present purpose, it includes all persons of definitely inferior intelligence and physique: it will be seen that Segregation of the Unfit is a means quite inadequate to the end.

2. The second proposal is that of a qualifying examination for marriage with the issue, in suitable cases, of a certificate of fitness and a permit to marry; without which permit marriage would be prohibited. This scheme—on which Professor J. Arthur Thomson seems disposed to look with some favour*—appears to me to suffer from three fatal

* "Heredity," p. 529.

defects. In the first place, in so far as the unfit are concerned, it would not necessarily reduce the number of offspring, but only the number of legitimate offspring. It would be certain to cause a great increase of illegitimacy in the unfit classes. In the second place, since it would be a compulsory measure, it would constitute a gross infringement of personal liberty; and in the third place, since it would be carried out by the State through the medium of officials, it would almost certainly be carried out inefficiently; unfit persons would receive permits and fit persons would be prohibited from marrying. It is possible that restrictions on marriage in the case of the certified insane, idiots, imbeciles, and feeble-minded persons might be practicable; but the enaction of any laws making marriage in general subject to the consent of "the State"—which, in practice would mean the consent of an official—would appear to me to constitute the creation of an evil greater than that which it was designed to cure.

3. Sterilization of the Unfit. This is a proposal which requires to be viewed from two separate standpoints: (*a*) The means itself, and (*b*) Its application.

(*a*) The proposal to sterilize the unfit by means of a surgical operation was, I think, first made in a really practicable form by Dr. R. Reid Rentoul in 1903. The object of the proposed operation is to close the communication of the essential organs of reproduction with the exterior and thus prevent their products from escaping. The channels of communication of these organs are, in the male the spermatic ducts or vasa deferentia, by which the testes communicate with the exterior of the body, and in the female the oviducts or Fallopian tubes by which the ova, or eggs, pass from the ovaries to the uterus. The operation consists in the ligature and division of these ducts, whereby the reproductive elements produced by the testes and ovaries respectively are prevented from escaping; and the effect upon the individual who is the subject of the operation is that he, or she, is rendered permanently incapable of begetting or bearing children. The operation upon the male is quite simple, trivial and free from danger; it gives rise to no collateral or after effects of an undesirable kind, and the individual operated upon remains completely normal in every respect, including the sexual functions, with the single exception that he is sterile—he is incapable of begetting children. He is thus not ineligible for marriage,

provided that it is understood that the marriage will be barren. In the case of the female the operation is somewhat less simple, though in the present state of surgery, it presents no difficulty and hardly any danger; and the effects are as satisfactory as in the case of the male. No abnormal conditions are set up and no incapacity for (childless) marriage is produced.*

It is evident, then, that we have, in these operations, a means of preventing the reproduction of the Unfit which has the undeniable merit of efficiency, and which, inasmuch as it inflicts no hardship beyond the desired sterility, may be regarded as quite practicable. To say that it is completely satisfactory would be to overstate the case. For a surgical operation, though it be only a trivial one, is but a make-shift remedy; but when it is the only efficient remedy available it must needs be given serious consideration.

(*b*) When we pass from the means itself to its application we begin to understand why so little use has been made of so efficient an instrument. For, almost without exception, its advocates have conceived its application in terms of compulsion. They have recommended it as a measure to be carried out by the State under compulsory powers; and in those cases in which it has been adopted—for instance, in Indiana and California—the most inadequate precautions appear to have been taken to safeguard the liberty of the subject. Dr. Rentoul, himself, recommends the compulsory sterilization of "all idiots, imbeciles, feeble-minded, epileptics, lunatics, deaf-mutes, defective and backward children, habitual inebriates, habitual vagrants, public prostitutes, many sexual perverts, and markedly neurotic persons," and, on the other hand would enact that "No person should perform the operation . . . without the official permission of the Lunacy Commissioners" under a penalty of fifteen years' penal servitude, if convicted in a Court of Law.†

The measure thus advocated amounts to the performance of surgical operations (involving the infliction of an unremovable disability) by agents of the State, at their own

* For the information relating to these operations I am indebted to Professor S. G. Shattock, F.R.S., by whom experiments were performed with a view to testing their physiological effects and the results communicated to the Royal Society in 1904.

† "Race Culture; or, Race Suicide? A Plea for the Unborn." By Robert Reid Rentoul, M.D., etc., pp. 145, 146 and 147.

discretion, without the consent of the persons operated on, without any means of appeal or opportunity for defence, or any of those safeguards of liberty which surround even the infliction of statutory punishments. In the case of criminals and able-bodied paupers such a measure might be admissible if carried out by the direction of a properly constituted Court of Law; but as a process to be applied wholesale to persons who are assumed to possess civil rights, it must be regarded with profound misgiving. Never has the liberty of the individual more urgently needed protection from the encroachments of the State than at the present day.

But even if we were prepared to achieve the improvement of the race at the cost of the disimprovement of our political institutions, there remains the objection that the means are not adequate to the end. Compulsory sterilization is applicable, even by the most heroic reformers, only to the abnormal Unfit, the criminal and the habitual pauper. But it is the normal Unfit class which, by reason of its vast magnitude, constitutes the imminent social peril; and to this class the method is not—under existing conditions—applicable. Even Dr. Rentoul does not propose to sterilize compulsorily the mere normal fool.

The conclusion which seems to emerge is: (1) That this method is of incalculable value as a perfectly efficient means of eliminating the unfit, but, (2) That the development of its efficiency awaits the discovery of some completely practicable method of application.

Thus, reviewing the proposals of eugenists for the elimination of the unfit, we are driven to the disappointing conclusion that none of them is competent to deal with the problem on the scale of magnitude which it presents. And the same is true of the more general suggestions which have been made by the great eugenic thinkers and investigators—Galton, Pearson, Thomson, Bateson, Schuster and a score of others. They are all wise and temperate and admirable; the product of wide and profound knowledge and earnest thought. But they do not meet the present threatening conditions. They had reference to a stationary race which needed to be improved, not to a race which is rapidly deteriorating and producing social disintegration. Suggestions that eugenic knowledge should be disseminated, that a eugenic outlook and a racial conscience should be cultivated, are entirely admirable and are taking useful

effect; but the knowledge, the eugenic outlook and the racial conscience are being acquired by the mentally elect. The unfit remain immune. They simply continue to propagate blindly and leave their offspring to be cared for by the fit.

The conclusion seems to be a profoundly disappointing one. A great unfit class has grown up, so vast as to occupy almost exclusively the attention of the governing body. It is generating political institutions adapted to its needs and unadapted to the needs of the fit. It is producing grave disturbances of social co-ordination and threatens to effect the disintegration of Society and even to destroy the stability of civilization. And it is increasing more rapidly than any of the fit classes, and by intermarriage, is causing deterioration in the quality of the latter. And meanwhile there appear to be available no efficient means for checking its further increase.

This appears to be the position; and a very serious position it is. Are we, then, at the end of our resources? Is there no loop-hole by which we may escape from the impending peril? Has our long and careful examination of the factors of unfavourable environmental change brought us to no more satisfactory result than the conviction that we must passively accept those changes; that we must watch inertly the crumbling of the social fabric and unresistingly submit to the disinheritance of our posterity?

To this question I return a confident negative. We are not at the end of our resources. As to the general, universal elimination of the unfit, I believe it to be, under present conditions, impossible. We have no means of sufficiently wide application. But I have not brought the patient reader so far to listen to nothing better than a dirge of hopeless pessimism. I have yet an alternative proposal to make.

In Chapter XI., p. 262, I pointed out that the mere increase of the unfit, though an eminently unfavourable condition, does not involve the complete and irrevocable destruction of Society so long as it is not accompanied by a general failure of racial quality; that whereas "the general deterioration of the race would constitute a condition quite hopeless and incurable," "the survival of a nucleus of superior individuals would render possible, even at the eleventh hour, a social reconstruction."

It is upon this truth that my proposal is based. If

the universal elimination of the unfit is impossible, then we must content ourselves with the measure which is next best in the order of efficiency—the local elimination of the unfit. If we cannot secure a general population composed exclusively of the fit, we can at least secure a local population so constituted. And this is what I venture to propose: the establishment of local populations consisting of completely fit persons without any admixture of the unfit. In short, the Voluntary Segregation of the Fit.

It will be objected to this proposal that it leaves the multiplication of the unfit to proceed unchecked; and this I freely admit. The remedy that I propose is not the ideal remedy; but it appears to me to be the only one that is at the moment available. Its purpose is not the regeneration of the whole population, but the arrest of that general deterioration of our race which is undoubtedly occurring. Its aim is to bring into existence visible bodies—actual populations—consisting entirely of men and women of a superior type, of good intelligence and physique and free from inheritable defects of body and mind; populations within which eugenically undesirable marriages would be impossible—since all the marriageable young people would be eugenically desirable—and which would form centres of cultivation of a superior variety of the human race.

But unambitious as the aims of this method appear, a little consideration will show that it has many and great advantages. In the first place, it is not only quite possible and practicable; it is possible and practicable *now*. It could be put into operation to-morrow by a mere handful of suitable persons, and those persons would begin to experience its benefits—in the form of improved social conditions—at once. My proposal has reference, not to a shadowy and problematical future, but to the present moment. A dozen families could start the movement, and if it extended no farther it would still be a success so far as they were concerned. No machinery is required, no propaganda, no great sums of money, no appeal to the State. It is a simple measure of voluntary co-operation which a few middle-class persons or capable artisans could carry into effect without assistance or any burdensome expenditure; and, as I have said, the benefit to them would not be contingent on the further extension of the movement. They would have secured an environment of eugenically and socially fit neighbours.

On the other hand, its adoption on a large scale would have much more important effects than appear at the first glance. The Universal Segregation of the Fit would obviously involve the segregation of the remainder—the Unfit. But, short of this, the Segregation of the Fit on a considerable scale would bring into existence large visible bodies of men and women of a much higher average of intelligence and physique than that of the general population. The appearance of these bodies could hardly fail to produce a considerable moral effect on the rest of Society. They would furnish an object lesson which would tend to awaken a "racial conscience" and pave the way for methods of wider application.

Moreover, the assembling of the superior members of our Society into visible aggregates would engender in them a solidarity and community of interest which must necessarily react favourably on the rest of the population and on the prevailing social institutions. And not the least beneficial of the results would be the direction of public attention to the social importance of the superior man. At present an undue amount of attention is being given to the inferior man. With his maintenance and his welfare the governing body is almost exclusively concerned, and he occupies the greater part of the horizon of public affairs.

This concentration of attention on the inferior man is the result of an illusion. The low-type man is socially conspicuous; he is politically active, noisy and aggressive; he organizes into visible (and audible) masses; and he engages in collective disturbances of social order and sensational collective movements. The higher type of man, on the contrary, is socially inconspicuous. He attends to his business and makes no noise. Hence the misleading effect of his socially insignificant character. He appears to form a negligible minority; and *de minimis non curat lex*. The segregation of large bodies of high-type men and women would tend to dispel this illusion. The sub-men form probably not more than a fifth of the population and the mentally inadequate not much more than half. If these proportions could be made visible, a very wholesome change in public opinion might result.

Finally, membership of a body of the kind that I have postulated would confer a definite status. It would be evidence of proved intelligence, sanity, physical fitness and satisfactory moral character.

And now, having glanced at the proposal and its advantages in general terms, we may proceed to consider it in detail.

CHAPTER XIV

THE VOLUNTARY SEGREGATION OF THE FIT

The Voluntary Segregation of the Fit, indicating a process as well as a condition, presupposes the existence of some kind of society or association for carrying it out. To the nature and constitution of this society we must presently give some consideration; but first it is necessary to impart greater precision to the terms, which we have hitherto used in a rather loose and indefinite sense and generally to bring our ideas to a somewhat sharper focus. The terms "fit" and "unfit" will require to be clearly defined, and their definition will be determined by the exact purpose of the proposed segregation, the principles on which it is based, and the method by which it is to be carried out.

First, as to the purpose. This is primarily the establishment of a rational and effective control of marriage without an infringement of individual liberty. In Chapter XI. we noted that racial deterioration is largely due to the intermarriage of the fit and the unfit; and that such intermarriage, inasmuch as it usually results from lack of judgment and experience in the contracting parties, is natural and unavoidable so long as young persons of all types mix indiscriminately. We cannot expect young people to institute enquiries into the ancestry of their lovers or to calculate the probable quality of their prospective progeny. This is not, and probably never will be "the way of a man with a maid," or *vice versa*. And we have agreed that it is not practicable to protect the inexperienced from undesirable mates and defective offspring by legal restrictions on marriage. But since the range of selection for marriage is the range of acquaintance, it is evident that young people whose circle of acquaintance included only the physically and mentally fit would be completely protected from the possibility of contracting marriages of a eugenically undesirable kind.

This, then, is the main purpose of the segregation. There are others, which we may consider later. But our proposed society is primarily eugenic in function.

Next, we must consider the principle on which the segregation is to be based. There are two alternative principles. Our society may consist exclusively of exceptionally gifted individuals, thus embodying the principle of extreme selection; or it may merely exclude exceptionally ungifted individuals and embody the principle of restricted selection. The first scheme looks tempting, with its suggestion of the establishment of a race of super-men, and it would offer certain advantages. But it would present great disadvantages. In the first place it would limit very unduly the size of the society. For the super-man is not only rather rare; he is difficult to identify when found. In order to estimate the quality of an individual as a prospective parent it is necessary to have a considerable knowledge of his ancestry for several generations. But such knowledge is seldom available. The information given by family pedigrees is mostly quite irrevelant; and it is not every family that keeps a "stud-book." The number of possible candidates, therefore, who would fulfil the conditions would probably be quite insignificant. But the influence and public utility of the society would be largely proportionate to its numerical strength.

The less ambitious scheme based on the principle of restricted selection and analogous to the natural elimination of the unfit, is therefore the one which we shall adopt; and our definition of the words "fit" and "unfit" will be framed in accordance with it.

And first as to the unfit. Evidently even the most modest scheme of selection must rule out the whole of the abnormal class—all persons congenitally defective in mind or body, with certain reservations as to the latter to be noted hereafter. Then, of the normal types, that which I have called the sub-man must also necessarily be excluded. But at what level above the sub-man is the zero line to be drawn? The answer to this question seems to be furnished by the statement of the principle adopted; for the exclusion only of the exceptionally ungifted leaves us with mediocrity as our baseline. And this would probably be quite satisfactory. If we decide that all persons attaining, or rising above, mediocrity in mental and bodily characters shall be eligible and that all failing to attain mediocrity shall be ineligible, we shall establish a standard ensuring an average greatly above that of the general population. The exact meaning to be applied to the word "mediocrity" in respect of the

various mental and bodily characters would have to be settled by investigation and discussion and need not be dealt with here.

One further point of importance remains to be considered before we proceed to the more detailed exposition of the scheme. The segregation of a number of fit persons would bring into existence a visible aggregation of the exclusively fit. But how is the fitness of that aggregation to be maintained? It is certain that the collective offspring of its members would—at least in the first generation—include an appreciable number of individuals below the minimum standard. How are they to be prevented from re-introducing the factors of deterioration?

It is here that the value of Dr. Rentoul's method becomes apparent. For the circumstances admit of its employment as a voluntary measure. In the case of the insane, the mentally defective and the epileptic it would probably be considered admissible to sterilize the children as soon as the condition was observed—with great advantage from a surgical point of view. In the case of those who presented merely a general deficiency in mental and bodily quality the operation would probably have to be deferred until adolescence for two reasons; in the first place, most of us would be prepared to contest the legal or moral right of the parents to cause such an operation to be performed upon a sane person without the consent of the subject; and in the second place the certainty that the deficiency was actually present could not be assumed until growth was nearly complete. But on the attainment of adolescence, the defective individual could be offered the choice of sterilization or renunciation of the status of a member of the society, and in the event of refusal to be treated would be returned into the unselected portion of the population.

One observation it may be well to make, not only in respect of sterilization but of all active eugenic measures; which is that it will always be well to do too little rather than too much. We have a good deal of knowledge—some rational and some empirical—and the admirable group of investigators which our country has produced daily adds to its sum. But it is not enough to warrant great activity; and it behoves us, in all our proceedings, to keep well within its limits. Experiments of doubtful issue should be confined to plants and the lower animals, and in all cases

the liberty of the individual should be considered before any more doubtful benefit.

And now we may proceed to formulate my proposal into a definite scheme capable of being put into practice forthwith by a comparatively small number of persons of not extraordinary personal qualities and not provided with great financial resources. It will not, however, be necessary to present this scheme in minute detail. We are at present concerned with the exposition of principles rather than with their application to particular cases; and for this purpose as well as for discussion and criticism breadth and simplicity are more desirable than exhaustive completeness. We will make this the preliminary sketch: the scale-drawing can come later.

The object of our society (which for brevity we may call "The League") would be to assemble into visible aggregations men and women of good racial quality; to form permanent communities of such persons and to maintain within those communities populations consisting entirely of such persons without any admixture of defective individuals. The League would therefore be analogous, not to a learned or political society but rather to associations like the Freemasons and the various Benefit Societies whose members are in economic relations. Its members would necessarily fall into two groups: (1) Those who, being immovably settled in particular localities, must continue to live among the general population, and whom we may call External members; and (2) those who, having no local ties, would be at liberty to settle in chosen localities with other free members to form actual communities. These (whom we may call Resident members) would probably be, for the most part, newly married couples and other young adults. The settlements, themselves, might take the form of new suburbs of large towns, or, preferably, of villages or rural settlements; or they might approximate to the garden city type, if that form commended itself to the prospective occupants.

The conditions of membership would have to be carefully considered. As we have agreed to adopt physical and mental mediocrity as our base-line they need not be rigorously exclusive. But they should be strictly adhered to. There should be no opportunist exceptions; no acceptance of individuals in whom large bumps of genius or special faculty project from the surface of a generally defective personality. Our purpose is to eliminate the elements of unfitness, not to

cultivate positive qualities; to raise the average quality of our local populations, not to produce exceptional individuals. For the latter are individuals who rise above the average; and the known facts of Heredity justify us in feeling certain that with a rise in the average quality of the aggregate would come a corresponding rise in the number and quality of the exceptional individuals.

On the other hand, we must exercise common sense. We must not pedantically adhere to merely verbal rules. Physical, or even mental, defects which are trivial and devoid of significance should be viewed in their true perspective. It would be manifestly unreasonable to reject a physically and mentally sound man because he had supernumerary toes, even though the latter happens to be an inheritable malformation. The general principle should be constantly kept in view that, for the purposes of our society, the quality of an individual is to be judged in terms of the probable quality of his posterity.

With this principle in mind, we may now consider the indispensable conditions to which candidates for membership of the League must conform. And first as to their physical qualities. We shall not be too exclusive if we stipulate that they should be of fair physique, that they should present no gross deviation from the normal stature of the race and that they should suffer from no congenital malformation, defect or abnormal bodily condition, nor from any disease or abnormal condition directly communicable or transmissible by inheritance. Provided, as above, that this rule be construed and applied in a reasonable manner, and that conformity with it be ensured by an examination conducted by one or more medical practitioners appointed by the League, who shall, if necessary refer doubtful cases to a medical board.

In respect of the mental qualifications, we should be justified in demanding that (*a*) candidates should suffer from no mental defect, deficiency or abnormal condition, nor from any congenital or transmissible affection of the nervous system, and (*b*) that they should be of not less than mediocre intelligence. Conformity with (*a*) could be secured by means of an examination by the medical referees, but the measurement of intelligence presents more difficulty, as also does the determination of the exact meaning of mediocrity. Probably, the difficulty would be most satisfactorily dealt with by a committee of competent psychologists, by

whom experimental tests could be devised and the minimum value of mediocrity settled. Examinations of the academic type are not very satisfactory. They do not necessarily demonstrate intelligence (even on the part of the examiners); but since it is only mediocrity that has to be established, they might be accepted until a more efficient substitute is available. Provisionally, apart from or in conjunction with the psychological tests referred to above, evidence of the existence of not less than mediocre intelligence might be furnished by:—

(*a*) The possession of qualifications to practice a trade, craft, art or profession requiring considerable skill or knowledge. In this case the word "skill" would need to be interpreted in a sense somewhat different from that in which it is often used by Trade Union officials. Mere dexterity in the performance of relatively simple manual actions affords no evidence of even mediocre intelligence.

(*b*) The possession of certain academic degrees, diplomas or certificates.

(*c*) Having successfully undergone certain courses of training.

(*d*) Specific personal achievements.

Conformity with the required standard of intelligence would need to be secured by means of investigations conducted by a committee of members—preferably a small one; and the members of this committee should be persons of good intelligence and judgment and adequate knowledge.

Mere intelligence, however, is not sufficient. The moral qualities are, in a social sense, at least as important as the intellectual; and we should be justified in requiring our members to be persons of good moral character and reputation. Evidence on this point would probably be less difficult to obtain than that bearing on the standard of intelligence.

The next matter to receive attention would be the vitally important one of family history. The ancestry, so far as can be ascertained, should be untainted by inheritable defects. Some of these would probably escape detection. Defects, like *Retinitis pigmentosa*, which appear to skip a generation, might be overlooked unless careful enquiries were made. When discovered, they would need to be considered by the light of the known natural history of the particular defect. A family history of insanity, epilepsy or other mental abormalities would render an applicant

ineligible, or if his admission were otherwise desirable would render necessary the application of the safeguards which will be considered presently. And as the family history of an applicant would ordinarily be known only to the applicant, himself, it would be desirable to obtain a written declaration, supported, if possible, by documentary evidence, as is the practice of many life assurance societies.

Then comes the question of race. The society which we are considering is to be an English society; and I submit that its members should be English; that is to say, they should be born of English parents and descended from grandparents of whom at least the majority were English. (The word "English" is here used to denote members of the indigenous population of the British Islands and is held not to be applicable to individuals of other races domiciled in those islands, whether "Naturalized" or not.)

Accustomed, as we are, to the practice of transforming all sorts and conditions of foreigners into "Englishmen" by the issue of papers of naturalization, this rule may appear unduly exclusive. But a little consideration will show its desirability. It is obvious that there is considerable difference in the inherent quality of the various European races. A glance at their achievements in the past and their condition in the present makes this evident. And among modern races the English stands in the first rank; and it is our own race. Here, then, are two sound reasons for restricting the membership of our society to persons of pure English ancestry. It is true that intermarriage with the best of the continental races might not be disadvantageous in a eugenic sense; but exceptions would be very unsafe and difficult to control. It would be simpler to avoid invidious distinctions by rigid adherence to the principle of racial purity.

Moreover, there is a distinct advantage in the cultivation of the racial sentiment and pride of race. This mental tendency distinguishes the better type of man in all nations; and conversely, it is notably absent in men of an inferior type. Criminals, swindlers, revolutionaries, shady financiers and many other undesirables tend to be markedly cosmopolitan and deficient in national sentiment.

If, however, it should be considered that the rule is too sweeping, I would suggest that it might be relaxed in particular sections and not in respect of the whole society. The establishment of local sections containing members of

mixed ancestry would render possible the inclusion in the League of many individuals of great personal excellence without the abandonment of the general principle, and would afford the means of judging the advantages and disadvantages of inter-racial marriages. But in no circumstances should persons of entirely foreign ancestry be considered eligible for membership.

In any case, racial segregation is an obviously valuable eugenic measure. It has been practised by the Jews for thousands of years with the greatest success and with very evident benefit to the race. But, indeed, the point should hardly need proof; for if it is desirable that superior families should be segregated from inferior ones, clearly a superior race needs to be protected from contamination by inferior races. The circumstances of the late war and the present state of certain parts of Europe impress on us the fact that there is such a thing as racial, as well as individual unfitness.

Of the social qualities demanded as a condition of eligibility little need be said, for obviously no restrictions in respect of class or caste could be entertained. In practice the bulk of the members would probably come from the Middle class, for the simple reason that that class contains the largest proportion of mentally and physically fit persons. But the society would be concerned exclusively with the real qualities—the intrinsic worth—of individuals, and hence could take no cognizance of fictions such as rank, "birth," "ancient lineage" and the like. On the other hand, real social qualities, such as amiability, good manners, refinement, unselfishness, justice and truthfulness, would be of great importance when local populations began to be assembled, though it might be difficult to ascertain their existence in advance. Subject, however, to this limitation of choice, the following classes of persons would be undesirable members and should if possible be excluded:—

(*a*) Persons of intemperate habits or addicted to the taking of drugs.

(*b*) Persons who are, or have been, associated with any movement or propaganda opposed to public policy or the common welfare.

(*c*) Persons of notably bad temper or bad manners or who suffer from any defects of character which would render them unacceptable as members of a small and intimate community.

(*d*) Persons of a confirmed propagandist habit or those who habitually engage in activities which tend to encroach on the liberties of their fellow-citizens.

(*e*) Persons who are members of any society or association the objects of which are antagonistic to those of the League.

Before proceeding to the next section of our subject, there are two qualifying observations which may be made upon the above conditions of membership. The first is that the conditions as to physical fitness might, in the case of women over forty-five years of age and men over sixty, be considerably relaxed, though no lowering of the mental standard could be entertained in any case. The second is that persons who fall below the physical standard, but are otherwise desirable as members, might be accepted subject to the condition that they should produce no offspring. I have spoken of voluntary sterilization; but, of course, this is not the only means by which undesirable parenthood may be avoided. It is, in fact, a somewhat unpleasant makeshift which should be quite unnecessary in the case of persons of reasonable intelligence and self-control. Its great value is in its applicability to individuals who are deficient in these qualities. Otherwise, the simple voluntary abstinence from parenthood of the physically defective so strongly and persistently advocated by Havelock Ellis, is completely efficient.

The above observations apply not only to those mentally fit but physically unfit persons who might wish to join the League; they apply equally to the unfit who might be born within it. As I have said, the very modest standard of fitness that we have adopted makes it certain that, at first, an appreciable proportion of the children of members would be definitely unfit. But the fact of their being born into the League would give them a conditional right to remain in it. The indispensable condition, however, of their continued membership would be that their unfitness should be limited to themselves; that they should not form the starting-points of a new unfit population. In the case of the merely physically unfit, but mentally fit, a guarantee of simple abstinence from parenthood might be sufficient; but in the case of the mentally abnormal or deficient, voluntary sterilization would be the only efficient safeguard. It would also be the most expedient measure in the case of defective females, whether the defect were physical or mental.

Having considered the conditions governing the personnel of our proposed society, we may now take a glance at the society itself; at the form which it would probably take and the constitution and scheme of administration which would be appropriate to it. In its character, as I have said, the League would approximate to the type of the "Friendly Society." Its final purpose would be the welfare of Society at large and of the human race, but, locally, its aim would be the common welfare of its members, and the means adopted would be those of mutual help, of friendly co-operation. To these aims and these means its constitution would have to be adapted. The usual form of a learned or political society—a secretary with a more or less shadowy council behind him, controlling a single, incoherent mass of members—would be quite inappropriate. It would need to be decentralized. Like a Friendly Society, which is a compound organization built up of a number of small administrative units—usually called "Lodges"—it would need a constitution providing an unlimited number of relatively small, local administrative units, each of which should be, as far as possible, self-contained. Let us briefly sketch out such a constitution.

Since the final purpose of the League would be the welfare of Society, to be achieved by the improvement of the race, and since the natural, biological unit of Society is the family, it follows that the family would be the unit of the League. For administrative purposes it would be convenient to regard as a family the group of persons forming a single household; and of each family there would need to be a recognized head, who, as such, would be an officer of the League having certain stated powers, duties and responsibilities. Unmarried members, living alone, would have the status of families. If associated with other unmarried members, they would form administrative families; or they might attach themselves as supernumerary members of ordinary families.

A group of families—preferably a small group—would form the next administrative unit—analogous to the "Lodge." In a community of resident members this group would naturally be formed of a number of adjacent households; and like the family, it would need to be presided over by a recognized administrative head, who would be elected by the constituent families. Of these primary groups, a number—strictly limited and preferably small—would be

formed into a secondary group, presided over in its turn by an administrative chief or director, elected either by the constituent families or, perhaps preferably, by a council formed of the heads of the smaller groups.

By a repetition of this process of progressive integration a society would be formed which, no matter how great its aggregate size might become, would have the utmost simplicity of structure. Moreover, it would have the great advantage that, at no stage of its growth, would individual members lose control of its management, provided the precaution were taken to elect the heads of groups for a limited period of office—which should not exceed one year.

For the sake of clearness it may be well to sketch out the structure of our proposed society in a slightly more concrete form, giving to the various groups definite numerical values —which are, of course, not necessarily those that would be adopted in practice. Thus, assuming an average family to consist of five persons and adopting the convenient number twenty as the multiplier; then the primary groups (which we will call the "A groups") would consist each of twenty families or about one hundred persons; or putting the matter into a tabular form:

An A group = 20 Families = 100 Persons.
A B group = 20 A groups = 400 Families = 2,000 Persons.
A C group = 20 B groups = 8,000 Families = 40,000 Persons.
A D group = 20 C groups = 160,000 Families = 800,000 Persons.
An E group = 20 D groups = 3,200,000 Families = 16,000,000 Persons.

Even adopting these merely illustrative numbers, it will be seen that the arrangement of the aggregate would be extremely convenient for administrative purposes. Assuming the existence of resident communities—which are the essence of the scheme—the A group would represent a small hamlet. Its members would form a small and intimate party, not as large as an ordinary cricket club, which would co-ordinate its affairs with ease and clear mutual understanding. It would be, as far as possible, self-contained and what little government it needed would probably be carried out by a friendly council of the heads of the constituent families, each of whom would be personally acquainted with all the members of the community. So each B group would represent a fair-size village, formed by

a federation of the hamlets. Its governing body would probably consist of a council of the heads of the A groups, the duties of which would be limited to the co-ordination of the joint activities of the latter. And so with the rest of the groups. The administrative functions of the higher directing bodies would be simplified to the utmost by the self-directing character of the smaller groups.

Moreover, at each stage of its growth the League would be a complete self-governing body, discharging efficiently the functions for which it was formed. If it consisted of no more than a single A group, that group would form a complete society whose members would enjoy the benefits conferred by eugenically and socially desirable neighbours; while any increase in the numerical strength of the whole society, no matter how great, would automatically evolve groups of higher denomination, leaving the simplicity and freedom of the smaller groups undisturbed. And, as I have said, at no stage of growth would the power of control and self-government slip from the grasp of the individual members. For that power would issue from the Individual to the Family, from the Family to the Sub-group, from the Sub-group to the Higher Groups; an arrangement that would tend to limit to the utmost the activities of that pest of all human associations and destroyer of all human endeavour —the Publicist or manipulator of crowds.

It need not be said that this scheme does not contemplate any conflict with, or disloyalty to, existing municipal or other constituted authorities, however antagonistic the activities of these might be to those ideals of race improvement which the League would seek to realize. A man who is socially, as well as physically and mentally, fit is a good citizen; and good citizens respect the Laws of the Land. But, on the other hand, a group of any considerable size would probably be its own municipal authority and, within its jurisdiction, could make such arrangements as were most acceptable to its members.

It is unnecessary further to pursue the exposition of the scheme. The sketch that has been given is sufficient to make clear the nature of the proposal and to furnish the material for such criticism and discussion as may be necessary for its more complete elaboration.

CHAPTER XV

ECONOMIC AND SOCIAL ASPECTS OF THE SCHEME

The primary purpose of the society, the constitution of which has been sketched in the preceding chapter, is the preservation of at least a portion of our race from the deterioration which threatens to overtake it. But there are other objects in view. The communities which it is proposed to establish are not to be regarded as mere centres of race culture. The persons of whom they are composed will be normal persons who will need to live normal lives; and inasmuch as their personal qualities will present a higher average than that of the general population, so it is reasonable to expect that the social conditions prevailing among them will be superior to those prevailing among the unselected population. A community of persons collectively above the average of intelligence and free from the encumbrance of an unfit minority, would hardly justify its existence if its members did not attain to a correspondingly higher average of welfare.

To this end, it appears to me highly desirable that each, at least of the larger communities should be, as far as possible, self-contained and self-supporting. Each urban centre should be surrounded by an area of agricultural land sufficient to supply most of its wants so far as natural productions are concerned and should contain a working population sufficient to produce most of the manufactured commodities consumed by the community. For this policy there are several very important reasons.

(*a*) In the first place there is the reason of simple economic expediency. Since the war the prices of manufactured goods have arisen enormously and coincidently the supply has become intermittent and unreliable. And the causes of these conditions are to a great extent permanent causes. The change is due to a development of organized industry which continues and is likely to continue. The production of common commodities in great factories fitted with power mechanism was based on cheap and abundant labour. But cheap labour is not, and will never again be, available. Moreover factory production must necessarily continue to be intermittent. For organized industry has the defect of all complicated machines; the derangement of one of its parts

causes derangement of the whole. A railway strike stops the supply of coal and raw material to the factories; a miner's strike stops the railway and steamship transport and closes the factories; an iron-moulder's strike paralyzes more than half the industry of the country; and so with strikes of other kinds. Their immediate effect is to render the supply of commodities intermittent and uncertain, and their remote effect—through the losses suffered by the manufacturers—is to make commodities expensive. But Labour has apparently adopted as a permanent policy the programme of Syndicalism; an endless succession of strikes. Just as the manufacturer views commodities as the pieces in a financial game, so Labour views them as the pieces in a political game. But these are not the functions of commodities at all, and these views cannot be accepted by the consumer.

The fact is that organized industry has broken down. Formerly it was assumed that the inferior quality of machine-made goods was compensated for by their cheapness and abundance. But now they are neither cheap nor abundant. Their badness is the only quality that remains. The machine labourer now demands—and receives—a craftsman's wage; the machine-made goods are sold at the price of hand-made goods, to which they are mostly immeasurably inferior. The inference is obvious. Under existing conditions it would be economically advantageous, at least in many industries, to re-instate the craftsman and to replace the cumbersome, complicated and unreliable system of centralized production by the simple, elastic, adaptable and reliable system of individual production in the areas of consumption.

And to the establishment of this system our communities are peculiarly adapted by reason of the unity of their populations. A single community of 400 families or 1,600 to 2,000 persons would easily support several boot-makers, tailors and weavers as well as a carpenter, a builder, a cabinet-maker, a potter, a blacksmith, a tinsmith, a coppersmith, a plumber, a hosier and several other individual producers; by whose joint labours the local population would be kept supplied with goods while the members engaged in agricultural pursuits would supply the greater part of the produce consumed. And even if the craftsmen should over-run the local demand, adjoining communities or bodies of External Members would probably take up the surplus.

(*b*) But, apart from mere economic expediency, there are several good reasons for endeavouring to establish local industries adjusted to local consumption—with an eye to the export of surplus products. There is the type of population to be considered and then that of the community itself, to neither of which a preponderance of the professional and clerical element would be favourable. A population of black-coated professional men, city men and clerks would make our community a mere residential suburb devoid of character and economic significance. The ideal community would be one chiefly composed of craftsmen and the proprietors of small co-operative works carried on by their joint owners, together with a semi-rural population of small farmers, market-gardeners, fruit-growers, and stock-breeders. In such a community stable social conditions would be created. It would be economically complete and its members would be in a normal condition of mutual dependence calling for, and making possible, mutual help and neighbourly relations. And life within such a community should be comely and pleasant, for there would be no great mills or factories with their accompanying dirt and disfigurement and their swarms of discontented labourers growling maledictions on the capitalist; but a population of decent men, working contentedly because they would be working for their own benefit, and working well to earn the good opinions of their neighbours. Here, too, the machine might appear in its proper character as the friend of man, relieving him of irksome labour without robbing him of his natural occupations.

In a eugenic sense, too, a large proportion of craftsmen, and especially of agriculturists would be of great value. For the available evidence goes to show that, other things being equal, men and women engaged in laborious, and particularly in open air, occupations present a markedly greater fertility than those engaged in sedentary and purely intellectual pursuits. And, though the increase of the population has been shown to be a very serious evil, it is clear that, until the multiplication of the unfit can be arrested, no falling off in the fertility of the fit is to be desired.

For all these reasons it seems to be of the highest importance to swell the ranks of the craftsmen and the agriculturists. And the proper recruiting-ground for both is the middle class. That a gentleman may be a farmer seems to be generally accepted; that he may equally well be a craftsman

seems to be less clearly perceived. Yet it is a fact—which our forefathers plainly recognized—that there is no more dignified occupation than that of highly skilled manual work. Wherefore, in our communities, the young men of the educated class must be induced to come forth from office or counting house, to shed the smug black coat and roll up their sleeves, to learn to do the work of men and discover the life that is of all lives the best worth living—that of the skilful handicraftsman.

There is another point, the significance of which is both economic and social. It will not have escaped the acute reader that a community of which none of the members is below mediocrity can contain no unskilled labourers of either sex. The common drudge, whose activities are little above those of a beast of burden, would have to be dispensed with; and this, to many will appear to offer an insuperable difficulty. By certain sociologists the inferior man has been declared to be an essential part of the population inasmuch as he can have assigned to him work which no one else is willing to do. But the assumption of his indispensable character is founded on a fallacy. The low-type man plays an apparently necessary part in social life because social life has become adjusted to his condition. He exists, and he is incapable of the higher activities; therefore the lower activities have inevitably fallen into his domain. Clearly, in a society of which he formed no part fresh social adjustments would have to take place.

A street-corner socialist to whom I once listened, discussed this difficulty with remarkable acuteness and common sense. "Who's to do the dirty work when all men are equal?" he demanded; and proceeded to return the very reasonable answer that every man would have to do his own, adding with perfect truth, that no man would object to a little dirty and laborious work for his own benefit. And the correctness of this orator's view will be endorsed by all who have witnessed the indifference to mere labour and physical unpleasantness that workers of the higher type invariably display; who have seen the pathologist at the post-mortem table, the osteologist at the stinking maceration tank, the anatomist, the bacteriologist, the physiological chemist in their unsavoury laboratories, the sculptor smothered in plaster, the potter stirring, bare-armed, his tubs of slip, the motorist or horologer, anointed with blackened oil and beaming

with happiness. The truth is that the higher-type man has no dislike to labour or even to dirt so long as they are merely incidents in a rational and interesting occupation. Only he refuses to specialize in dirt and labour.

But a large proportion of the dirty and laborious work that is done by men of the lower type is created by themselves. It is a poor creature who is content to spend a working life-time picking up scraps of paper and rubbish in the public parks. But who deposited the paper and rubbish? Surely they were dropped there by persons of his own class. And so it is with much of the litter of the world; it is created by that class which specializes in clearing it away.

Nevertheless, a good deal of work would have to be done in our communities which no one would wish to do. And since no human drudge is available, we must look around for some substitute; and naturally we cast our eyes on the machine. If a few capable mechanicians would turn their attention from machines designed to supersede the skilled worker to machines designed to fill the place of the unskilled labourer, the difficulty would be to a great extent solved. With the aid of suitable domestic and industrial machines and constant care to avoid creating unnecessary work, members of our communities would hardly miss the unskilled man and woman, while their absence would be, in many ways, an immense relief.

In designing machines for the use of the housewife and the craftsman two facts may be borne in mind; first, that the power required is quite small and its employment widely intermittent; and secondly, that coal and mineral oil—the usual sources of power—are commodities the supply of which is contingent on the prevailing mental state of organized labour; whereas wind and running water are to be had for nothing and are not at present controlled by any union. An insignificant stream—running the whole twenty-four hours—will charge a battery of accumulators: and even the wind hardly merits the contempt in which it is held in these days of gigantic plants. A small windmill will lift a good many gallons of water to a twenty-foot staging in the course of twenty-four hours; and ten gallons of water at this height represents twelve thousand four hundred foot-pounds of work, capable of development by a small turbine or other water-motor and available at a moment's notice by turning a stop-cock. The mechanical drudge needs to be considered from a standpoint totally different from that of the designer

of great industrial machines which are required to put out enormous power and to work continuously hour after hour and day after day.

The absence of the unskilled labourer and the domestic drudge would probably influence, by no means adversely, the character of the populations of our communities. The conditions created would be favourable to the thrifty, the industrious and the self-helpful, and unfavourable to the idle and the luxurious. The ideal population would be one largely consisting of young couples of good intelligence and slender means, with a sprinkling of young bachelors and spinsters. And as this desirable type is also the most probable one, at least at the beginning, we may deliver ourselves of a few wise saws for the guidance of the young people.

We may note, to begin with, that the rational purpose of industry is not the attainment of wealth, but that of a comfortable subsistence with security from poverty. The man who sacrifices his youth and his leisure to the accumulation of more money than is necessary to buy what he actually wants, shows a lack of imagination and common sense. Further, we may note that the effective personal wealth of an individual is the product of what he has and what he can do without. With these simple truths in view let us glance at certain economic adjustments which the conditions of our communities would make possible.

There is, for instance, the question of fashion in dress. Our present fleeting and unstable fashions are evidently related to the bad quality of machine-made textiles. When cotton cloth contains half its weight of china clay and woollen cloth has a cotton warp and a weft well diluted with shoddy, and when both are treated with unstable dyes, garments are apt to have but a short life.

> "They pass, like all fugitive things,
> They fade and they pass, but lo!"

the Harris tweed, and the few other surviving hand-woven textiles, live on into an old age which is not necessarily green. Now, each of our communities should contain at least one hand-loom weaver, who would, if possible, obtain his flax and wool locally. The textiles would therefore be of great durability. But durable textiles, implying garments of corresponding longevity, involve stability of fashion—or what is better: the avoidance of rigid conventions of style.

In any case, the silly and wasteful habit of incessantly renewing clothes is irreconcilable with the use of material of high quality and not particularly low initial cost.

In connection with this subject a point of considerable æsthetic interest arises. The increased longevity of garments would justify increased attention to their design and execution. At the present time it is customary for men to walk the earth enclosed in shapeless bags of textile material with tubular attachments to contain their limbs. And though a modern woman may be well dressed if she pleases and has the necessary taste, the immense possibilities of feminine clothing are seldom nearly realized. In both cases the badness of design and workmanship is largely a consequence of the badness of the material; and with improvement of the latter there would arise the need for improvement in the former. The law of the relation of material and workmanship set forth on p. 121 applies to clothes as to all other human work. The hand-made textile would call for the serious efforts of the tailor and dressmaker, and good material and workmanship would invite the attention of the designer. There are artists such as Mr. Talbot Hughes, Mr. Seymour Lucas and many others, who could give valuable advice on the subject of dress design; and just as picturesque dress gives charm to a pictured world, so would it impart interest and gaiety to the world of realities.

Perhaps in no department of dress is the economic unreasonableness of modern conditions more conspicuous than in those durable adjuncts which should be permanent but which are made fugitive. Take, for instance, the case of buttons. The common horn, vulcanite or "compo" buttons of a man's coat are machine-made products which roll out of the factory by the hundredweight. Probably their average cost is not more than a penny. But what an absurdity is this! For a button is an object of such durability that it may easily last the life-time of its wearer. There is no utility whatever in this ridiculous cheapness. On the other hand, a button is the part of a man's or a woman's dress that is naturally marked out for the display of beautiful material and workmanship. Scarf-pins, finger-rings and the like are ornaments pure and simple; but the button is indispensable. Its adornment would fulfil the fundamental condition of applied art; that the ornament should be the enrichment of a useful and necessary thing.

So, in our communities, the durable adjuncts of dress

would not be shot out of factories by the ton, but made individually and lovingly by the skilful craftsman, to be treasured by the users and enjoyed by all. Buttons of chased silver, of embossed bronze or enamelled copper; buckles and clasps of goldsmith's or silversmith's work, enriched with enamel or simple stones, smooth-set and cabochon cut; leather work, stained, tooled, inlaid, and perhaps sparingly touched with gold; would serve as points of emphasis on garments made worthy by thoughtful design in collaboration with the hand-loom, the lace-bobbin and the embroiderer's needle. Our selected young people should be comely and happy; and they would be none the less so for being gracefully dressed.

And that which is true of dress is no less true of the other things which form the most intimate part of the environment of man; the things which, inanimate though they be, take on by daily and hourly contact, a character of silent friendliness. They are worthy of a decent birth. They should not be banged into existence by soulless machines and huddled forth from the factory in truck-loads—the uncared-for pawns of the money-spinner and the labour politician. An appreciable advance in human welfare would be marked by the replacement of the sordid trash of the "Great Industry" by the productions of real human work. The home even of the artisan or the small farmer should be provided not with the vulgar factory-made furniture, with its sham carvings, its yawning joints and treacly varnish, but with that of the simple, kindly vernacular type that came from the cheery workshop of the old country cabinet-maker.

And such furniture and utensils we would have in our communities. If no Chippendale or Sheraton should arise among us, at least our craftsmen should be able to turn out an honest spindle-back chair or gate-leg table; if we should produce no Dwight or Wedgwood, we need not use the hideous and unserviceable German enamelled iron ware while there is clay to be had for the making of pitchers and bowls. But the probability is that our communities would tend to become centres of high-class craftsmanship and that the simpler industries would need the most encouragement. For the social conditions would be peculiarly congenial to the artistic worker, as well as to the student, the scholar, the musician and the man of letters, all of whom would have interests in the larger world, but whose presence should be helpful to the growth of purely local industries.

From industry itself we turn naturally to the subject of industrial training. Recently there have come into existence a number of schools of handicraft whose function is to create craftsmen to replace those who have been killed off by the factory system. But these schools tend to develop a defect which is common to most educational institutions. The pupils are taught by men who are professional instructors; and the professional instructor seems to have an incurable tendency to generate products in his own image and likeness. The arts graduate of the older Universities is the counterpart of the tutor who coached him; the student turned out by a crammer's college is an immature crammer; the young ladies who take the full course at a State Art School finish up with the Art Mistresses' certificate; they are qualified teachers, but usually very unqualified artists. Even the agricultural students seem to become instructors rather than farmers. And so the Student of the Technical School is turned out a Technical Schoolmaster instead of a Craftsman. The favour and hope with which these institutions are viewed by the educational authorities is by no means shared by the practical craftsmen; who are unanimous in the belief that a craft can be efficiently learned only in a workshop where real work is being done by real workmen under normal trade conditions. And it is undeniable that the age of craftsmanship was the age of apprenticeship, while the technical schools appertain to the age of machine production.

But in its application to the industrial conditions of our communities—apart from the fact that they would have workshops but probably would not have technical schools, at least of the conventional kind—the question of the mode of instruction has an important economic bearing. In a technical school a student is engaged in what is virtually dummy work—work of "instructional" value only. The work of an apprentice on the other hand, has an economic value from the beginning. He acquires skill, knowledge and experience by doing, under supervision and guidance, work that is actually productive. And inasmuch as our communities would need all the workers they could get, practising craftsmen would be encouraged to take into their workshops likely youths and young men either as regular apprentices or as pupils or improvers. It would probably also be advantageous for the workers in the various crafts to form associations somewhat on the lines of the old craft guilds by which the interests of the workers could be watched,

a respectable standard of workmanship maintained and the placing and instruction of apprentices facilitated.

To pass from the more definitely economic to the more definitely social aspects of our scheme, we may first consider the relations of the persons forming the communities. As I have said, we are not to look upon our communities as mere centres of eugenic experiment. We must not allow ourselves to be possessed by an obsession of race-culture. Our members would have to live their lives normally and reasonably and as pleasantly as possible. Yet we must never lose sight of our main object, which is a normal and reasonable object and the natural motive force of industry and forethought—provision for the essential welfare of our children and our more remote posterity.

The means which we have adopted to protect our young people from the danger of contracting non-eugenic marriages is the exclusion from their environment of unfit persons. The range of choice in marriage is the range of personal contact—of acquaintance. If the circle of acquaintance of our young people is limited to the fit, then marriage with the unfit can hardly occur. But, within the prescribed limits, it is highly desirable that contact should be free; that the circle of acquaintance—corresponding to the range of selection—should be wide. For a marriage may be eugenically excellent and yet unsatisfactory by reason of the personal incongruity of the parties; and the smaller the range of selection, the greater will be the likelihood of such unsuitable mating. The interests of the young people (who are the people who matter most) would therefore be served by such arrangements as would secure the greatest amount of contact between the members of communities. And such free contact would not only tend to improve the quality of marriages; it would tend very materially to increase their number; a matter of primary importance in communities which would aim, on the one hand, at replenishing the fit population and, on the other, at maintaining a high standard of conduct and morals. It hardly needs to be pointed out that the physiologically correct period for marriage is that of young adult life, when fertility is greatest and motherhood is accompanied by the least inconvenience. And the other advantages of early marriage are not less obvious; the pleasant comradeship between young parents and their children, which even increases as the children grow up, and security from

those social evils which beset communities containing large numbers of unmarried adults.

Moreover, free intercourse between members of the communities would be advantageous even to the older inhabitants, and especially so to the communities as a whole. For the League itself would be a co-operative organization for the mutual benefit of its members, and this co-operation would be effective in proportion to the unity and esprit de corps prevailing in it. Every member of the League should look on every other member, even though he be a stranger, as a friend, a comrade and a fellow-worker in a common cause; and evidence of membership should be accepted as a claim to help and brotherly treatment.

As to the means by which free intercourse between members would be maintained, they would be mainly settled by the parties concerned; but certain obvious and simple arrangements suggest themselves. For instance, every fully established community would have its Village or Town Hall, in which the council would meet and the records be kept. Such a hall would ordinarily be open, to serve as a meeting-place where members could fore-gather to gossip. It might be wholly or partly supported on pillars, thus providing an open cloister, furnished with seats or chairs, in which informal meetings could take place, and which could, on occasion, serve as a market for certain kinds of wares. Its main hall would be provided with a floor suitable for dancing and a musicians' gallery; and it would be the duty of the local president and his council to organize, at least once a week, an entertainment of a simple and informal kind, which would be free to all members without specific invitation. These entertainments would be of the nature of family parties to which all would contribute. The musician would bring his fiddle, or other portable instrument, and take his turn in the music gallery while the others danced; games would be played by the young and frolicsome, while the naturalist, the collector, the artist, the craftsman, or anyone who had something of interest to show, would bring it along and put it in an appointed place for inspection. On other evenings the hall could be lent to any member who was willing to arrange an entertainment for the general benefit; and all such entertainments would be subject to the necessary condition that all would be welcome without distinction of class or caste; that there would be no dress or other restrictions such as might be burdensome to persons of small

means; that there should always be a recognized host or hostess, who would be responsible for the general conduct and who would have complete authority as Master or Mistress of Ceremonies; and that a high standard of conduct, manners and taste would be set by the responsible seniors and conformed to by the rest.

In addition to indoor meetings and entertainments, outdoor sports and amusements would bring the members together and create an atmosphere of healthy gaiety. Ample facilities would be provided for open air games such as tennis, cricket, football, golf and hockey and for open air dances, concerts, pastoral plays and similar amusements; and it would be accepted as a principle that members of all ages would endeavour to attend as many as possible of these social gatherings, even at some sacrifice of personal inclination, in order that a spirit of neighbourly sociability might be kept alive.

In respect of general intercourse, it is hardly necessary to say that our select population would cultivate manners suited to its presumable superiority. Here, in England, manners are at present at a rather low ebb, and I have heard it said—with what truth I cannot judge—that in other parts of the English-speaking world the standard is no higher. In our communities women and men would behave like ladies and gentlemen. They would cultivate no stilted archaisms of manner—though even these may not always be amiss—but they would practise a suave and courteous mode of behaviour, in the home and in public; and above all, they would study those deeper essentials of good manners—sympathy, consideration, tact, self-restraint, unselfishness and complete control of temper. And with care in regard to manners would naturally come a certain fastidiousness of speech. The deplorable " pidgin English " that we manufacture at home or import from America is not only silly and inelegant: it is a real hindrance to mental development. If the statement,

> " You gave man speech
> And speech created thought,"

inverts the order of growth, it is nevertheless the fact that the habitual employment of slang words, catch phrases and other verbal forms of uncertain connotation, involving obscurity and haziness of meaning, engenders a correspond-

ingly muddled and nebulous condition of thought. Moreover, certain forms of debased speech constitute a definite breach of good manners. Our gentlefolk would avoid pedantry, Teutonic flourishes of the "high-well-born" type and archaic affectations; but if there must needs be a choice, and no *via media* were available, they might think it better to address a feminine acquaintance as "fair lady" than as "old thing."

This cultivation of good manners and seemly speech, consciously and of a set purpose, would not merely be advantageous as supplying a necessary factor of pleasant social life; it would, under the circumstances, be a real necessity. For the essential character of our communities and the social conditions generated by it must inevitably involve the disappearance of those conventional distinctions of caste which were introduced into this country on a large scale by the royal house of Hanover and even yet survive. When a man's social worth is assessed in terms of physique, intelligence and moral qualities, and the excellence of his ancestry in terms of freedom from inheritable mental and physical defects, the status conferred by ancient lineage and "gentle birth" must necessarily become negligible. As a qualification for marriage into a select family, a good set of teeth would be more to the point than sixteen quarterings; and a long pedigree of soldiers and landed gentry would be no set-off to known ancestral insanity or bad morals. Even titles of nobility must dwindle in value; for if inherited, they convey nothing but a label with no reality behind it; if conferred for public services they do not necessarily imply the existence of any valuable inheritable qualities; while if purchased, as so many titles are at the present day, they simply constitute a record of a discreditable transaction between a man who bought something that he had no right to buy and certain persons who sold, for their own benefit, public property which they had no right to sell.

The acceptance, therefore, of intrinsic quality as the only standard of comparison between individuals, involves inevitably the disappearance of fictions of social status—of labels announcing qualities which have no existence. But with the elimination of these fictions of social inequality there would arise a danger of the opposite kind. We should have to be on our guard against the fiction of equality. This is being generated on a great scale at the present day, by Socialists and Social Democrats; and it is a worse fiction than

the one which it seeks to supplant. For the old aristocratic families, if not rich in intrinsic qualities, often had a fine tradition of manners and conduct, which had almost the effect of inheritable excellence. So the genuine democrat, while stoutly maintaining the potential equality of all men, would listen with impatience to the claim of some crude vulgarian to be considered "as good as" a man of intellect, culture and refined manners. Wherefore, in our communities, the universal social equality would be understood to be potential. It would be for the individual himself to make it actual. The man of humble antecedents who should enter and claim social equality with his fellow-members, would have to see to it that the alleged equality existed; that his claim was backed by a reality of manners and conduct. And to this end, a high standard of manners, conduct and speech, studiously cultivated by all, would be the most efficient means.

It may not be uninteresting to speculate on the possibility of some new form of graduated social status arising in the future and crystallizing into a system based on eugenic realities. Such a possibility is by no means remote. Eugenically speaking, the position of a man who can prove a physically and mentally excellent ancestry of three generations is clearly superior to that of a man whose ancestral guarantee extends to only two generations. In our communities—in which records of family history would be scrupulously kept—it is imaginable that a new style of nobility might come into existence, even accompanied by some sort of titles and the equivalent of badges of rank and quarterings. Thus a man of one unexceptionable ancestral generation might use a badge indicative of unity, such as a globe or a spear; a man of two ancestral generations, a badge suggestive of duality, such as a balance or a pair of wings; of three generations a triple sign, such as a trefoil (the three globes of the Medici would probably be unacceptable); and so on. The idea sounds a little fantastic and Gilbertian; but it is undeniable that our mandarin of five or six buttons would be the very finest type of mandarin that the world has ever seen.

Here, perhaps, I may advantageously bring this somewhat discursive chapter to a close. In it our communities have been sketched rather than drawn. But the general character of the scheme has been conveyed to the reader;

and the filling-in of detail—however amusing—would have no utility. That may be left to those who carry the scheme into effect.

CHAPTER XVI

THE GOAL OF EVOLUTION

In the first part of this book we were occupied in the examination and analysis of things and conditions actually existing. The second part hitherto has dealt with a synthetic scheme the immediate results of which, if it should be carried into effect, can be foreseen and predicted with approximate certainty. Now, before we conclude, it may not be amiss to look somewhat farther into the future and see what more remote effects would follow its adoption.

It has already been pointed out that the establishment of even a small community of the League would have a considerable moral effect upon the population at large. The superior social conditions which would prevail in it; the freedom from disorder, the absence of slums and settlements of the submerged class, of squalid industrial neighbourhoods, of the sordid factory with its halo of dirt, litter and ugliness; the friendly and mutually helpful relations of its inhabitants, engendered by a common purpose, a common interest and common responsibilities of citizenship; the steady and reliable supply of commodities of good quality, neither interrupted by the incessantly recurring strike of organized labour nor accompanied by the extortion of the mass-producer; the generally decent and seemly conduct of life and the agreeable aspect of the inhabited area: would bring home to the least imaginative observer the truth that the quality of the human environment is but a reflex of the quality of the men whom it environs. And this conviction, as it became more wide-spread, could hardly fail to produce important changes in public opinion and the general social outlook.

But the establishment of a group of communities on a really considerable scale—say a group with a joint population of a million and a half—would result in changes far more profound: changes which would amount to a complete social revolution and which would see the problem of racial deterioration in a fair way to final solution. For such a condition

could not be stationary. A million and a half men and women forming a visible solid and united body of the best intelligences and physique of our race would not only make that race secure from decay and extinction, but it would form by far the most influential body in the country. The desirable social conditions prevailing in the communities, on the one hand, and the superior status of the members of the League on the other, would rapidly attract the remainder of the fit population. None would wish to remain outside who were eligible for admission. Thus the population would tend to become separated into two great groups; those who were eligible for membership and those who were ineligible; the Fit and the Unfit.

With this division of the population into two groups, each in full view, and each surrounded by the environment of its own creating, anything like the present social order would be seen at once to be absurd. A social scheme like that which is at present in operation, under which almost the entire national effort is expended in enabling the unfit to survive and multiply at the expense of the fit, would be rejected with derision as unthinkable. There would come a demand that the multiplication of the unfit should cease; and if such demand were not responded to by voluntary restriction of offspring, it would be enforced by measures of control. For it will be borne in mind that the fit, when assembled into a solid and united body, would possess supreme power by virtue of their position as the creators of the means of subsistence.

The effective control of the multiplication of the unfit would usher in a new era. It would now be possible to deal with the evil of over-population. For it would no longer be necessary for the fit to multiply freely to avoid submergence by the unfit. They could now restrict their own birth rate with a view to reducing the population to a size which would be easily and comfortably accommodated in its natural environment. And this reduction of the population, apart from the immense increase of comfort and ease of subsistence which it would effect, would bring in its train two inestimable benefits.

In the first place, with reduction in the size of the population would come an improvement in its quality. For the reduction would not be effected by a mere indiscriminate restriction of births. It would afford the opportunity for more strict selection. Experience would now have been

gained as to the most desirable type of citizen. Complete family records would be in existence for use as guides in the process of selection; and the growth of citizenship, of altruism, of the racial conscience and the habit of voluntary co-operation, would render unnecessary the rather unpleasant expedient of sterilization (excepting by personal preference). The parentage of the new generation could be arranged by mutual agreement. Multiplication of the unfit having ceased, that of the mediocre might also be inhibited. The zero line could be raised; the renewal of the race could be allotted to demonstrably superior families and the march of racial progress could be resumed.

In the second place, the reduction of the population to a size that would admit of its comfortable subsistence on the products of its own area of occupation, would eliminate both the predisposing and the determining causes of war. For it cannot be supposed that this great social reform would operate in one country only. It has long been recognized by thoughtful men that the race which succeeds in eliminating its unfit is the race which will inherit the earth; and the visible success of any one nation in this respect would be the signal for the adoption of similar measures by other nations. It is certain that none of the great peoples of Europe and America would allow themselves to be left behind and that the advanced Asiatic races would be as ready to follow Western methods in this as they have been in less desirable directions. All the great nations would proceed to get rid of their unfit and strive to cultivate a finer racial type; and then they, too, would tend to prune their populations down to dimensions which would admit of universal comfort and prosperity. But this general contraction of the population of the civilized world would amount, in effect, to a general expansion of the human environment. There would no longer be any temptation for one race to trespass upon the territory of another; while the smaller size and greater value of the populations would act as strong deterrents from international strife. The ultimate cause of the late war was the excessive growth of the population of Germany; its predisposing cause was the pressure from within, creating a tendency to overflow into adjacent territories; its determining cause was the fact that the Kaiser could "afford to waste a million."

This elimination of the conditions which predispose to and determine war between nations would be a benefit, the

magnitude of which it would be difficult to over-estimate. For such conditions are already in active operation, and the threat of great racial movements due to over-population even now hangs over the civilized world. This menace of international war broods like a sombre cloud over the immediate future, and, with the almost equal menace of intra-social war darkens the prospects of civilization. And both are the direct consequences of the multiplication of the unfit; and both would disappear with the elimination of the latter.

It may be objected that a relatively small population would be liable to sudden attacks by adjacent larger populations whereby it might suffer compelte annihilation. But reflection does not confirm this view. It is true that applied science has made it possible for military forces furnished with the mechanical appliances of war, to spread death and destruction over large areas at great distances and almost without warning; that the application of mechanical knowledge to the destruction of human life has immensely facilitated violent crime, both individual and national. But this generally unfavourable condition is not without its compensations. It operates both ways. If it is possible for one bank robber, armed with a pair of "automatics," to murder the whole bank staff, or for a band of revolutionaries provided with machine guns and bomb-throwers, to overpower a multitude of unarmed citizens; it is equally possible for a small but capable population to take effective measures against a horde of armed barbarians. The advance in mechanical lethal appliances more and more reduces the value and necessity of large defensive armies and tends ultimately to favour the man of superior intelligence; whose greater knowledge, skill and ingenuity will give him greater efficiency in the use of existing appliances and enable him to devise new and improved forms. This was well illustrated in the late war; in which Germany, having started, after half a century of preparation, with overpowering numbers and provided with every known destructive appliance—including many forbidden by international law—was finally beaten by the superior military ability of the French and the superior ingenuity and industrial ability of the English and Americans.

But not only is it true that a relatively small but highly intelligent community would almost certainly be well able to take care of itself; it would not have to do so unsupported. There would be similar select populations in the other civil-

ized countries; and it cannot be doubted that, so long as there survived anywhere unfit populations which might be a source of danger to the general peace, the select populations would maintain a general federation for their common defence against the barbarians and the preservation of civilization. And further, we may assume that, in the event of an attack by a relatively uncivilized nation on the civilized, the peace of the world would be secured by the application to the unfit aggregates of the eliminative principle which had already been applied to unfit individuals.

The federation for purposes of mutual help and common defence of a group of individualist communities, essentially similar to those communities of the League sketched in the preceding chapters, would render unnecessary any formal League of Nations. The independent and self-contained character of these communities would imply a minimum of interference in the affairs of other communities; and the alliance, for a simple and specific purpose, would not demand a great international organization, with its dangerous lure to the ambitious politician and would-be world dictator.

The formation of national populations of superior men undiluted by an admixture of definitely inferior types, would probably be accompanied by the establishment of a system of social co-ordination somewhat on the lines of that which I have sketched in Chapter XIV. It is needless to say that a governing organization like that which has grown up in this country since the war would be totally inappropriate to such a society. For that governing body is, as I have said, principally concerned in adapting social conditions to the needs of a class of men which would not exist in a selected population. Obviously, with the passing of the sub-man would come the disappearance of his various appurtenances —the public house, the picture palace, the agitator, the street corner orator, the central autocrat, and the political prestidigitator.

The scheme of administration which I have suggested for the League, would, with the necessary development, be equally applicable to municipal or national co-ordination. It is a natural system and is in conformity with the normal modes of human aggregation; the federation of small aggregates into larger compound bodies, by which the advantages of union for purposes common to the whole body are secured without sacrificing those of independence and the control by individuals of their own conditions of life. Its simplicity,

its cheapness, the fact that it would render unnecessary most of the cumbersome, costly and inefficient machinery of central government, that it would abolish the professional politician and that it would secure to each individual the greatest possible amount of personal liberty; would probably commend some such decentralized form of government to the members of a selected population.

A glance at a society existing under these improved conditions shows many changes from the present. The swarming, jostling population of to-day is replaced by moderate aggregations in which there is room for all. And those aggregations consist entirely of persons of decent appearance, suggestive of reasonably prosperous circumstances. And throughout Society a general amity and mutual goodwill prevails. There is no great body of "Labour," growling threats and shouting demands at its fellow-citizens. For the working class is socially equal to any other class. Its members are mostly their own employers, either as individual workers or as joint owners of the works or small factories in which they labour. The great mill and the giant factory have disappeared. Their existence is impossible for two reasons. In the first place, there are no men or women who would entertain such an occupation as that of a mill-hand or a factory labourer; and in the second place, a cultivated population contains no purchasers of the debased commodities that result from mass production.

But if the working class has changed in character, it has also changed in its relative size. For the passing of the huge centres of machine production has restored industry to man. The armies of distributors, of advertisers, of travellers, of all kinds of non-producing attendants on machine industry, have melted away. They have become producers—workmen, craftsmen. From the occupation of inducing people to buy what they do not want, they have passed to that of supplying them with the things that they do want. The restoration of the honourable status of the skilled manual worker has caused an exodus from the office and the counting house and has filled the workshops, the potteries, the smithies, the foundries, the printing-houses, with men of good intelligence, education and social position. And as skilled industry has once more become an honourable and pleasant occupation, so the products of industry have recovered their dignity, their beauty, their durability and their adaptation to the needs of man. Moreover, the growth

of the working class has brought with it a corresponding growth of production. The relative slowness of individual creation is amply compensated for by the great number of workers as well as by the durability of their works, which makes possible the accumulation of many kinds of commodities from generation to generation.

Furthermore, the reduction of the population has enabled it to subsist upon the natural productions of its own habitat, and has at the same time made available additional areas of productive land. There is ample space for all the necessary farms, orchards and market gardens with even some margin for the preservation of heaths, forests, fens and other regions in which wild nature and the aboriginal birds, beasts and plants may survive. Thus each urban centre, with its population of industrious craftsmen creating goods, is surrounded by an agricultural area populated by yeomen and small farmers, by which it is supplied with natural produce. And the entire population of the area—farmers, workmen, shopkeepers, teachers, doctors and professional men of various kinds—forms an intimate society of which all the members are admittedly dependent on the others and in which all acknowledge the duty of mutual help.

But perhaps it is unprofitable to peer too intently into the future for the filling-in of detail. Nor is it necessary. For, broadly speaking, we know all that is needful for our guidance. We know that if the time should come when our present huge population—swarming, jostling, struggling and fighting for space and the bare means of living, half of which consists of persons who ought not to exist—is replaced by one half its size, composed entirely of healthy, strong, intelligent and moral men and women, living together in amity, in mutual goodwill and mutual helpfulness; each supporting himself by his own efforts, and all solicitous for the common good: then will life be infinitely more worth living and the average of human happiness infinitely higher. We know that with such a population, living at ease in an ample environment; a population in which the lunatic, the idiot, the wastrel, the criminal, the weakling, the sub-man, if they exist at all, are but the rare and curious survivals of disappearing forms, having no visible place or part in social life: the future of the race will be secure for all time and man will have set his feet upon the path of progress towards a state as far above the present as the present is above that of his pre-human ancestors.

The inevitable criticism may be anticipated. *Vestigia nulla retrorsum ;* "we cannot set back the clock"; and so forth. But it is ill framing a policy by proverbs and catch-phrases. And neither of these is true. It is but a fool who persists in an admitted mistake; who plods doggedly along a road which he has ascertained to be the wrong one; who lets his clock show the wrong time when he could set it right by shifting the hands. But, in fact, it is not suggested that we should return to the conditions of any previous age. The conscious and purposive selection of the population and its reduction to the limits of comfortable subsistence, are measures of advance, not of retrogression. And those social and economic institutions—Collectivism and Central Machine Production—the abandonment of which is suggested, are institutions of recent origin which have proved to be failures in practice. Machine production has failed to provide commodities equal to those of the pre-machine age and has created impossible social conditions; and Socialism—a system by which the unfit are enabled to subsist parasitically upon the fit—has aggravated those conditions and threatens the very existence of civilized Society. The abandonment of these failures does not imply a return to the conditions of the Middle Ages. It is admittedly proposed to revive those conditions of the past which were more desirable than those of the present; but surely that is but a sane and reasonable proposal. There is no suggestion that the bequests of the passing centuries should be refused; that the gifts of knowledge or the powers conferred by applied science or mechanical invention should be discarded. Only it is claimed that these accumulations of wealth should be applied to advance the welfare of man; that science should be his handmaid, not his dictatrix; that mechanism should be his servant, not his master.

And, as to the problem of population, that will assuredly be dealt with by agencies artificial or natural; with our consent or without it. For the population grows apace, and we cannot enlarge the earth. The late war dealt with it, to a hardly appreciable extent; the present upheaval in Russia is dealing with it on a more efficient scale. Do these methods commend themselves to us? Or are not those of the League better? Shall our populations be kept within bounds by war, by wholesale murder, by famine and pestilence? Or by the rational method of voluntary restriction? By the extermination of the fit by the unfit, as we

have seen in Russia ? Or by the humane elimination of the unfit with progressive selection of the best ?

These are the alternatives. And I affirm that they are the alternatives of racial decay and annihilation on the one hand and on the other of advance towards a goal of racial perfection and nobility the splendour of which it is beyond our powers to conceive.

But still the incurable sceptic will shake his head and smile his indulgent smile. "A dream" he will murmur; "an enthusiast's dream"; and so will dismiss the subject. And a dream it admittedly is. But has not every project, since the world began, been a dream until energy and resolution have made it a reality ? Were not the very pyramids a dream until industry and skill materialized them into imperishable stone ? Was not the steam-engine the dream of an enthusiast until the labour of the founder and the smith transformed it into a moving giant with the power to sway the destiny of man ? Has not the flying-machine been the dream of mechanicians for more than a millennium, until by much dreaming it has at last become real ? So it may be with this one if we have but the will. It is a pleasant dream, this, of a rejuvenated race of men and women, strong, healthy intelligent and happy, living a full and gracious life on this fair earth, fulfilling bountifully in the noonday the promise of the dawn. And we can make it a reality if we have but the courage and the fixity of purpose. We can, if we choose, bequeath these good things to our posterity and may even share in them ourselves.

But the time grows short. Swiftly run out the sands of opportunity. Relentlessly the sinister shadow creeps across the dial towards the spot whereon is written "Too late." Let us then fare forth betimes upon our pilgrimage. The way shall not be so rugged or the road so steep but that courage and resolution shall shorten the journey; and over the crest of the hill the Promised Land stretches away to the far horizons smiling in eternal sunshine.

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